PB90-114695

Superfund Record of Decision (EPA Region 2)
Glen Ridge Radium, NJ. (First Remedial Action)
June 1989

(U.S.) Environmental Protection Agency, Washington, DC

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EPA

Superfund Record of Decision:

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16. Abstract (Limit: 200 words)

The Glen Ridge Radium site is in the Borough of Glen Ridge and the town of East Orange in Essex County, New Jersey. The site covers approximately 90 acres of residential neighborhoods including 306 properties. The Montclair/West Orange Radium site is adjacent to this site and is being addressed concurrently under one remedial action. The soil at the site is contaminated to varying degrees with radioactive waste materials suspected to have originated from radium processing or utilization facilities located nearby during the early 1900s. The waste material was disposed of in then-rural areas of the communities. Houses were subsequently constructed on or near the radium waste disposal areas. Some of the radium-contaminated soil is believed to have been used as fill in the low-lying areas, and some of the fill was mixed with cement for sidewalks and foundations. Temporary radon ventilation systems and gamma radiation shielding have been installed and maintained by EPA and the State to reduce indoor exposures. In June 1985 the State initiated a pilot study and excavated portions of the radium-contaminated soil and disposed of the soil offsite. The primary contaminant of concern affecting the soil and structures is radium^{226} which decays to radon gas.
(See Attached Sheet)

17. Document Analysis a. Descriptors
Record of Decision - Glen Ridge Radium, NJ
First Remedial Action
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Key Contaminant: radium^{226}

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EPA/ROD/R02-89/079
Glen Ridge Radium, NJ
First Remedial Action

16. Abstract (continued)

The selected remedial action for this site includes excavation of approximately 41,000 yd^3 of highly contaminated soil and an unspecified amount of debris followed by offsite disposal; installation and maintenance of indoor engineering controls at less contaminated properties; environmental monitoring to ensure remedy effectiveness; and continuation of a treatment technology study for future actions. A final decision for the less contaminated properties has been deferred until after the 60-day public comment period extension. The estimated present worth cost for this remedial action is $53,000,000 with no O&M costs.

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DECLARATION STATEMENT

RECORD OF DECISION

Glen Ridge Radium Site

Site Name and Location

Glen Ridge Radium Site, Essex County, New Jersey

Statement of Basis and Purpose

This decision document presents the selected remedial action for the Glen Ridge Radium site, developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act, as amended by the Superfund Amendments and Reauthorization Act, and to the extent applicable, the National Contingency Plan. This decision is based on the administrative record for the site. The attached index identifies the items that comprise the administrative record upon which the selection of the remedial action is based.

The State of New Jersey concurs with the selected remedy.

Assessment of the Site

Actual or threatened exposures to hazardous substances released from those site properties addressed in this Record of Decision may present an imminent and substantial endangerment to public health, welfare or the environment, if the response actions selected in this Record of Decision are not implemented.

Description of the Remedy

The remedial action presented in this document represents the first planned for the site. It provides a permanent solution for many of the residential properties, including those with the most extensive contamination. This action also provides an interim solution for a number of contaminated properties, where radon gas and/or indoor gamma radiation levels exceed health guidelines. Additional remedial measures for these and other properties, both public and private, with radium-contaminated soil above cleanup standards, will be selected in a future Record of Decision after further public comment.

The selected remedy includes the following components:

- Total excavation of the most extensively contaminated residential properties, with off-site disposal of radium-contaminated materials;
- Installation and maintenance of indoor engineering controls at less contaminated properties;
- Limited or "hot spot" excavation at residential properties, where removal of small quantities of radium-contaminated materials will completely remediate such properties;
- Environmental monitoring, as necessary, to ensure the effectiveness of the remedy; and
- Continuation of treatment technology studies which may offer practical remedial methods for any future actions at the sites.

Declarations

The selected remedy is protective of human health and the environment at many of the properties, and is cost-effective. At other properties, it provides for interim measures to reduce some of the risks attributable to the contaminated soil. Due to the limited scope of this action, only portions of the remedy attain Federal and State requirements that are applicable or relevant and appropriate for the site. The remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable. However, since treatment of the principal threats of the site was not found to be practicable, it does not satisfy the statutory preference for treatment as a principal element.

Because the selected remedy will result in hazardous substances remaining above health based levels on a number of properties, a periodic review of the interim actions (i.e., engineering controls) will be undertaken to ensure that they continue to provide adequate protection of human health and the environment. In addition, EPA will continue to evaluate potential remedial measures for the purpose of providing a permanent solution for the remaining contamination.

June 30, 1989
Date

William J. Muszynski, P.E.
Acting Regional Administrator

soil is also believed to have been moved from the original disposal locations and used as fill material in low-lying areas. Houses were subsequently constructed on or near the radium waste disposal areas (also referred to as "core areas"). In a few instances, it appears that some of the fill was mixed with Portland cement to make concrete for sidewalks or foundations.

Site History and Enforcement Activities

The Montclair/West Orange and Glen Ridge Radium sites were identified as a result of a program initiated by the New Jersey Department of Environmental Protection (NJDEP) to investigate former radium processing facilities within the State. Recognizing that the radioactive waste materials could have been disposed of at locations distant from the facilities, NJDEP requested in 1981 that the Environmental Protection Agency (EPA) conduct an aerial gamma radiation survey of a 12-square mile area of Essex County. This aerial survey identified a number of areas exhibiting elevated levels of gamma radiation. Ground investigations conducted in 1983 confirmed contamination at the Montclair and Glen Ridge study areas, and identified several houses with gamma radiation and indoor concentrations of radon decay products exceeding acceptable levels. (The West Orange study area was added to the ongoing investigation in April 1984).

Actions to Date

EPA began preliminary investigations in late 1983 to assess the extent of contamination at the Montclair/West Orange and Glen Ridge sites. A program was established to monitor the levels of radon decay products in affected houses on a quarterly basis. Since that time, temporary radon ventilation systems and gamma radiation shielding have been installed and maintained by EPA and NJDEP to reduce indoor exposures to radon decay products and gamma radiation. In October 1984, the Montclair/West Orange and Glen Ridge Radium sites were proposed for inclusion to EPA's National Priorities List of Superfund sites. (Final inclusion was made in a special listing in February 1985). In November 1984, EPA began a remedial investigation and feasibility study (RI/FS) to determine the nature and extent of the problem, and develop remedial alternatives to alleviate it.

Pilot Study Conducted in 1984

In May 1984, EPA and NJDEP jointly planned a pilot study to evaluate the feasibility of excavation and off-site disposal of the radium-contaminated soil. Twelve properties, with varying degrees of contamination, were selected for the pilot study and preliminary engineering assessments were prepared. In the fall of 1984, EPA decided to forgo the pilot study since the full RI/FS had been initiated. NJDEP, however, decided to proceed

DECISION SUMMARY

Montclair/West Orange and Glen Ridge Radium Sites

BACKGROUND

Site Description

The Montclair/West Orange and Glen Ridge Radium sites are listed as two sites on the Superfund National Priorities List (NPL). The two sites include three noncontiguous study areas located in residential communities of suburban Essex County in northeastern New Jersey about 12 miles west of New York City. Figure 1 shows the locations of the three study areas.

The Montclair study area covers approximately 100 acres and includes 239 properties in the Town of Montclair and 127 properties in the Town of West Orange. The West Orange study area covers approximately 20 acres and includes 75 properties in the Town of West Orange. The Glen Ridge study area covers approximately 90 acres and includes 274 properties in the Borough of Glen Ridge and 32 properties in the Town of East Orange.

The three study areas are located in the eastern foothills of the northeast-southwest trending Watchung Mountains which rise 600 feet above sea level. The general slope of all three areas is to the southeast, although considerable terracing and filling has occurred throughout the areas.

The contaminated areas in Montclair, West Orange, Glen Ridge and East Orange are present in older, well-established residential neighborhoods with single- and two-family homes. The three study areas include public areas, such as streets and/or parks, in addition to the residential properties.

There is no surface water flowing through the Montclair and Glen Ridge study areas. Wigwam Brook, which originates in the Watchung Mountains, passes through the West Orange study area. Groundwater resources within the study areas are an unconsolidated, glacial-overburden aquifer, and the deeper, fractured-bedrock aquifer of the underlying Brunswick Formation. The majority of the drinking water supplies for the towns within the study areas are drawn from surface reservoirs in northern New Jersey, although some deep bedrock aquifer wells in the vicinity of the sites are used for water supply.

The soil at the sites is contaminated to varying degrees with radioactive waste materials suspected to have originated from radium processing or utilization facilities which were located nearby in the early 1900s. The material was disposed of in then-rural areas of the communities. Some of the radium-contaminated became apparent that an evaluation of both interim and final remedial measures would need to be included.

Enforcement Activities

There are numerous allegations about the source of the materials that were disposed of at and near the Montclair/West Orange and Glen Ridge sites. However, as yet, there is no apparent evidence that directly implicates any one person or organization. EPA continues to pursue reports or inferences regarding the origin of the material, and will continue to search for whatever evidence might become available during the excavation of properties within the Montclair/West Orange and Glen Ridge sites.

Community Relations History

Public Meeting held in November 1985

EPA issued a draft RI/FS report in September 1985. EPA then announced a 60-day public review period and held a public meeting on November 13, 1985. At that meeting, it was noted that excavation of the radium-contaminated soil was the Agency's preferred approach for solving the problems at the sites, but the lack of a disposal facility prevented the selection of a remedy involving excavation with off-site disposal. The meeting was very well attended, with approximately half of the 1500 persons present unable to be accommodated in the meeting place. Even though EPA was not endorsing an on-site disposal option, the communities were adamantly opposed to any consideration of excavation, relocation and consolidation of the radium-contaminated soil onto the original core areas of disposal in the Towns of Montclair and Glen Ridge.

EPA prepared a Responsiveness Summary following the 1985 public meeting and public comment period. This document compiled the written and verbal comments directed to EPA, both at the public meeting and during the comment period, and presented EPA's response to the substantive comments and suggestions received. EPA has since issued several fact sheets and updates informing affected residents and concerned parties about project developments, and has held numerous availability sessions to provide additional forums to encourage public participation in the remedial planning process.

Proposed Plan Presented in April 1989

EPA continued to investigate the sites, evaluating both long-term solutions, including excavation and disposal of the contaminated soil, and interim measures to solve the problems associated with the presence of the radium-contaminated soil. The results of these investigations are presented in a Supplemental Feasibility Study report which was made available to the public on April 4, with excavating the contaminated soil and initiated a pilot program.

NJDEP began excavating in June 1985, after securing a disposal site for the contaminated soil by contracting with a commercial disposal facility in Nevada. Four properties in Glen Ridge had been completely remediated when Nevada revoked NJDEP's disposal permit. With no disposal facility available, NJDEP was forced to leave containerized soil at its transloading facility in Kearny, New Jersey, and around partially excavated properties in Montclair. New Jersey subsequently sued Nevada before the U.S. Supreme Court to reinstate the permit. While awaiting resolution of the case, NJDEP continued to pursue other options for disposal of the excavated materials.

NJDEP was able to remove the containers from Montclair in the fall of 1987 and, in the summer of 1988, successfully disposed of the remainder of the soil stored at Kearny. The pilot program demonstrated that excavation of radium-contaminated soil is a feasible remedial action, but that transportation and subsequent disposal of the contaminated material makes any excavation and off-site disposal alternative an extremely tenuous option.

Excavation Alternative Preferred in 1985

EPA issued a draft RI/FS report in September 1985, and announced a 60-day public review period. EPA then held a public meeting on November 13, 1985. At that meeting, it was noted that excavation of the radium-contaminated soil was the Agency's preferred approach for solving the problems at the sites, but the lack of a disposal facility prevented the selection of a remedy involving excavation, with off-site disposal. Because of this, EPA installed gamma radiation shielding and/or ventilation equipment in more than twenty additional properties that were affected by excess radon gas and/or gamma radiation. EPA continued the quarterly monitoring program and collected data on additional properties within the study areas. In conjunction with NJDEP, EPA also continued to maintain the temporary ventilation systems and gamma radiation shielding. As they were discovered, additional houses exceeding health guidelines were included in the quarterly monitoring program.

Supplemental Feasibility Study Initiated

The problems with identifying a viable disposal location, either in- or out-of-state, combined with the potential for being prevented from using a site once it had been identified, as evidenced by NJDEP's earlier efforts, led to a decision to reexamine and search out additional remedies. EPA began a supplemental feasibility study in March 1987 to develop and evaluate measures to protect public health. As that study progressed, it

[(WL); see Table 1]. The background level within the study areas is approximately 0.002 WL. Additionally, both indoor and outdoor gamma radiation levels [reported in units of microRoentgens per hour (μR/hr); see Table 1] have been measured at many of the study area properties. More detailed indoor and/or outdoor gamma radiation surveys have been completed at a limited number of properties. Background gamma radiation is estimated to be approximately 8.3 μR/hr within the study areas [see Table 1]. Indoor gamma radiation levels measured at site properties range from 6 to 357 μR/hr. Outdoor gamma radiation levels were detected in the range of 6 to more than 1,000 μR/hr.

The major areas of soil contamination, or "core areas" are shown in Figures 2, 3 and 4. These core areas were determined from evaluation of the surface soil samples, boring data, and surface gamma readings. The distribution of contaminated materials within these core areas is typically found throughout entire properties to depths in excess of ten feet, even though some of these properties show only spotty measurable contamination at the surface. Additional surface soil and boring measurements indicate that some of the radium-contaminated material may have been moved from the original disposal locations and used as fill in low-lying areas. Further relocation of material might also have occurred during the subsequent residential development of the study areas. In summary, the lateral and vertical extent of the contaminated material is irregular and not easily predictable.

Summary of Site Risks

Elevated concentrations of radium^{226}, thorium^{230}, uranium^{234} and lead^{210} are present in soils at the Montclair/West Orange and Glen Ridge sites. In addition, elevated indoor levels of radon and radon decay products have been measured in houses at these sites. The residents within the study areas are or have been exposed to unacceptable risks from gamma radiation, and the radon and radon decay products generated from the radioactive decay of the contaminated material at the sites.

The Federal Centers for Disease Control (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR) have evaluated exposure pathways through which radiation poses a threat at the sites. These pathways include inhalation of radon and radon decay products, irradiation by gamma radiation, ingestion and/or inhalation of radium-contaminated soil, and ingestion of contaminated vegetables grown in the soil. As the radium in the soil undergoes radioactive decay, it forms radon gas. Since it is a gas, radon can easily move through soil to the ground surface or into houses. Typical radon entry routes are shown in Figure 5. Within a matter of days, the radon gas itself decays into a series of radioactive particulates referred to as "radon progeny", "radon daughters", or "radon decay products". While

1989. Concurrent with the study, EPA released for public comment a proposed plan describing its preferred approach for addressing the radium contamination at the sites. The original 60-day comment period was scheduled to end on June 2, 1989, but was extended one week to June 9, at the request of the Mayor of Glen Ridge and others, to allow for additional review and comments.

Public notices announcing this public comment period, as well as the extension, were published in several local, widely-distributed newspapers including the Newark Star Ledger, the Montclair Times, and the Glen Ridge Paper. Samples of the newspaper notices are included in Appendix D of the responsiveness summary which is attached to this document. In addition, EPA held public availability sessions at its office trailers in Montclair for four days following both April 3, 1989 briefings of the town councils of the affected communities, and a public meeting conducted on May 18, 1989. Meeting summaries of the town council presentations are provided in Appendix B of the responsiveness summary which includes the oral and written comments received during this most recent comment period.

Summary of Site Characteristics

Soil on public and private properties within the sites is contaminated with radionuclides which are primarily those in the uranium decay chain. These nuclides include isotopes of radium, thorium, uranium, lead and others. As noted earlier, radioactive waste materials, suspected to have originated from radium processing or utilization facilities, were disposed of in then-rural areas of the communities. Hence, the main radionuclide of concern is radium^{226}. The radioactive decay of these nuclides in the soil is causing elevated indoor concentrations of radon gas and radon decay products in some houses, while others additionally exhibit elevated levels of indoor and/or outdoor gamma radiation. A number of properties have only elevated levels of gamma radiation. Radon gas and gamma radiation pose different types of radiation threats and, therefore, require different control techniques.

The concentration of radium^{226} measured in the soil ranges from "background" levels [see Table 1; i.e., approximately 1 picoCurie per gram (pCi/g)] up to 4,545 pCi/g. The range of thorium^{230} concentrations measured is approximately the same as that found for radium. The concentration of uranium^{234} and uranium^{238} is generally about ten times lower than that measured for the thorium^{230} and radium^{226} radionuclides. The highest uranium concentration was measured at 310 pCi/g.

Because radium, which radioactively decays into radon gas, is found naturally in most soils, radon and radon decay product levels have been measured at approximately 700 of the site properties, with values ranging from 0.001 to 1.55 Working Levels radon gas is quickly dissipated in the outdoor air, as it decays inside a house, the concentration of radon decay products in the indoor air increases. The above-background lifetime risks from this exposure pathway range from 0 to 361 excess deaths per 1000 persons exposed.

While long-term exposure to indoor radon gas and radon decay products presents the greatest single health risk at the sites, other pathways of exposure are not insignificant. The radioactive decay of radium also results in the emission of highly penetrating gamma radiation. Gamma radiation is of concern because it may expose anyone standing near a contaminated area to an irradiation over the whole body. The greater the duration or intensity of the exposure, the larger the dose and, therefore, the greater the risk of adverse health effects such as cancer, birth defects, and genetic defects. The above-background lifetime risks from this exposure pathway range from 0.5 to 12 excess deaths per 1000 persons exposed.

Additionally, because airborne particulate matter (e.g., wind-blown dust or soil) may contain small concentrations of radium, inhalation of radium is a possibility at the sites. Inadvertent ingestion of radium-contaminated soil, and ingestion of radium-contaminated vegetables, are other pathways that can result in doses to various internal bodily organs. This, in turn, can result in an increased risk of developing leukemia, anemia, and bone cancer. However, studies have shown that the projected radiation doses from these pathways are much smaller than those estimated for either radon decay product inhalation, or direct gamma radiation exposure using even the most conservative assumptions.[1] The above-background lifetime risks from these three exposure pathways range, respectively, from 0.01 to 0.5, 0.1 to 2.2, and 0.2 to 5 excess deaths per 1000 persons exposed.

Exposure level scenarios at the Montclair/West Orange and Glen Ridge sites are based on the assumptions that: 1) residents spend 75 percent of their time indoors and 25 percent outdoors; 2) young children through the age of five ingest one gram of soil per day, while an adult would ingest 0.1 grams per day; 3) 15 kilograms of vegetables grown in contaminated soil are consumed by an adult resident each year; 4) 60 micrograms per cubic meter of contaminated dust are inhaled by an adult on a daily basis; and 5) average exposure is determined using a 70-year lifetime.

Groundwater exposure was not considered in the risk assessment. Public drinking water supply wells have shown no evidence of contamination to date and, therefore, no risk was calculated from this potential exposure pathway.

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[1] U.S. Environmental Protection Agency, Feasibility Study, Denver Radium Site, Operable Unit II, Prepared by CH2M Hill, Inc., August 1987.

The remedial objective is to reduce, to the lowest levels practical, the existing public health threats posed by indoor radon and radon decay product concentrations, indoor and outdoor gamma radiation levels, and inhalation and/or ingestion of radium-contaminated materials.

Scope and Role of the Selected Remedy

Excavation of the radium-contaminated material is the Agency's preferred solution to the problem. However, because of the uncertainties involved in maintaining the availability of a disposal facility, as well as a desire to minimize the disruption of the communities during remedial action, EPA intends to initiate remedial action at the Montclair/West Orange and Glen Ridge Radium sites in a phased manner. EPA believes such an approach to be appropriate in light of the difficulty in assuring transport and disposal capacity for large amounts of contaminated materials, over a long period of time.

The selected remedy will address the most highly contaminated residential properties by fully excavating the radium-contaminated soil and transporting it to an off-site disposal facility. In addition, EPA intends to undertake limited or "hot spot" excavation of near-surface contamination at a number of residential properties where such action would provide a final remedy for those properties. Interim actions will be taken at some of the remaining properties with soil contamination above the cleanup standards. The indoor engineering controls include the installation of state-of-the-art radon mitigation systems and/or shielding for gamma radiation protection where appropriate.

EPA had also proposed to partially excavate contaminated soil from many of these remaining properties and establish institutional controls to reduce exposure of residents to contaminated materials. EPA also proposed to establish institutional controls for public properties within the study areas as a means of preventing workers conducting typical subsurface utility maintenance and repair work from being exposed to contaminated soil remaining beneath public areas and streets. As a result of public comments and concerns, EPA is deferring a decision on partial excavation and institutional controls and is providing a 60-day comment period to receive additional input from area residents and local officials on the two issues of partial excavation and institutional controls.

This approach allows EPA to begin excavating the radium-contaminated materials which have affected the residential communities while mitigating the health impacts associated with indoor exposure to radon gas, radon decay products, and gamma radiation in a timely manner. In addition, the remedy allows for further development of promising treatment technologies which ultimately may offer a more implementable and cost-effective remedy for any future actions at those properties with contamination remaining on them. EPA will evaluate any new technologies which are developed and assess the continued availability of off-site disposal capacity to determine the most appropriate method for addressing these properties. Any future actions at these properties will be the subject of subsequent Records of Decision.

Groundwater Investigation

EPA is initiating a separate study of the groundwater at the sites. The intent of the study is to determine the extent of any contamination resulting from the presence of the contaminated soil and to evaluate mitigation alternatives, should contamination be encountered. Any remedial action related to groundwater contamination will also be addressed by a subsequent Record of Decision.

Documentation of Changes from the Proposed Plan

Public comment was mixed with respect to the proposed alternative that was presented on April 4, 1989. Several components of the alternative were fully supported by the public, however, other portions met with considerable opposition. In order to implement the major portion of the remedy supported by the public, EPA is modifying its preferred approach in selecting a remedy. All of the essential components of Alternative 7, The Combined Approach, are still incorporated in the selected remedy. However, it has been modified to defer decision on outdoor gamma radiation shielding and partial excavation of radium-contaminated soil, where such excavation does not result in final remediation. In addition, a few properties located between extensively contaminated properties will be fully remediated.

The proposed plan called for partial excavation of some private properties to remove radium-contaminated surface soil to a depth of a few feet. Replacement of the excavated material with clean soil would then have provided sufficient shielding to attenuate, to levels at or below background, any gamma radiation emanating from contaminated material remaining at depth. The implementation of this excavation scheme would have complied with public health criteria, both indoors and outdoors, at all properties. However, it would leave contaminated material beneath the public areas and streets. In addition, institutional controls (that is, restrictions on later excavation of the properties) would have been an integral part of this remedy to ensure the effectiveness of the indoor and, particularly, the outdoor engineering controls.

The term "institutional controls" is used throughout this document to denote those societal control measures that a community would employ to prevent disruption of radiation protection remedies or exposure to contaminated soil remaining near or even well-below the ground surface. Such controls could include municipal or county health ordinances. For example, any activity undertaken by a property owner which could disrupt either the protective measures or contaminated soil might be subject to an approval process. The approval process might be developed within the individual municipalities. The process may include requiring permits for certain home repairs or additions, or for outdoor activities which might disturb the contaminated soil. The process could also include requiring that sellers of property with engineering controls or contaminated soil obtain a certificate of compliance indicating that the property attains the established health guidelines prior to transfer of the property in question. Institutional controls are needed if radioactive materials remain at the sites because the materials will continue to emit radiation for years. The properties would be monitored periodically to ensure that the remedial measures remain protective.

The selected remedy now does not include any of the partial excavations where removal of a few feet of contaminated soil would not accomplish a final remedy for that property. A few feet of soil might still be excavated at some properties, but only if the excavation would fully clean up that property. The selection of remedial measures to address outdoor soil contamination on the remaining properties, both private and public, is being deferred until additional discussion with affected property owners and town officials has been completed. Following the receipt and consideration of all additional comments, EPA will prepare subsequent Records of Decision selecting the appropriate actions for the remaining properties.

DESCRIPTION OF ALTERNATIVES

Summary of Remedial Alternatives

The recent supplemental feasibility study report issued on April 4, 1989 entitled "Supplemental Feasibility Study for the Montclair/West Orange and Glen Ridge Radium Sites" describes a large number of remedial options and technologies. After screening of these options, seven remedial alternatives were identified for detailed evaluation in the supplemental feasibility study report. Table 2 provides an itemized list of the costs associated with various components of the candidate remedial alternatives. Table 3 lists the criteria upon which the following alternatives were evaluated. Note that the costs for the alternatives described below are expressed in terms of present worth.

Alternative 1: No Action

COST: Not Applicable (N/A)   TIME TO IMPLEMENT: N/A

Under this alternative, the existing temporary radon ventilation systems and gamma radiation shielding would remain in place, but there would be no provision for operation and maintenance. With a projected life of only several years, it is assumed that the temporary radon ventilation systems would soon fail and that indoor concentrations of radon and radon decay products would return to pre-ventilation conditions. Unlike state-of-the-art radon mitigation systems, the temporary ventilation systems currently installed at the Montclair/West Orange and Glen Ridge Radium sites rely heavily on mechanical devices to control radon and radon decay product concentrations. These temporary systems have remained effective thus far primarily because an active monitoring and maintenance program is being implemented by EPA and NJDEP. The gamma radiation shielding would be expected to remain effective for many years; however, in time, it too would lose a measure of its effectiveness unless properly maintained.

Alternative 2: Continue Existing Action

COST: $5.0 million   TIME TO IMPLEMENT: N/A

The second alternative is an interim alternative in which conditions at the sites would remain as they exist. No further remedial action would take place, but operation and maintenance of the existing temporary radon ventilation systems and gamma radiation shielding would be provided for a period of ten years. The quarterly monitoring program that has been on-going to measure radon and/or radon decay product concentrations in houses would continue. Institutional controls would not be established. All of the estimated 323,000 cubic yards of contaminated material would remain on site.

Alternative 3: Engineering Controls

COST: $20.0 million   TIME TO IMPLEMENT: 3 years

This interim alternative involves the implementation of one or more of the following engineering controls, as determined necessary, at study area properties:

- Installation of state-of-the-art systems to reduce indoor concentrations of radon and radon decay products (these systems would be similar to those used in Montclair and Glen Ridge and in areas of naturally occurring radon);
- Installation of additional indoor gamma radiation shielding;

- Installation of outdoor gamma radiation shielding and/or covering of radium-contaminated soil;
- Relocation or redistribution of "hot-spots" of radium-contaminated soil on properties.

Institutional controls (e.g., municipal or health ordinances) would also be necessary to ensure the effectiveness of the engineering controls.

Alternative 4: The Park(s) Alternative

COST: $74.0 to 78.5 million   TIME TO IMPLEMENT: 4 years

The intent of this alternative is to return radium-contaminated soil that had been relocated from the original disposal or core areas back to the core areas. The contaminated soil would be capped with clean material to protect public health and the environment and to provide useful park areas. One park would be established in Glen Ridge and another in Montclair, covering approximately 6 and 11 acres, respectively.

This alternative would require the acquisition of approximately 75 properties located within the proposed park boundaries. Houses located on those properties, which are already the most contaminated properties at the sites, would be demolished. Radium-contaminated soil would be excavated from properties located outside of the park boundaries and placed on the contaminated soil within the parks. The radium-contaminated soil would be securely covered to control the release of radon gas, to shield against gamma radiation, and to prevent the material from being a source of groundwater contamination. After covering, the areas would slope to elevations several feet above the existing ground surface, depending on the type cap chosen, and would be landscaped into recreational parks which would be open for public use.

Alternative 5: Total Excavation, With Off-Site Disposal

COST: $ 252.7 to 348.7 million   TIME TO IMPLEMENT: 7 years

Under this alternative, all on-site soil contaminated with radium exceeding the cleanup standards (see Table 3) would be excavated from private properties and public areas, including soil now located under the streets, and replaced with clean fill. The volume of radium-contaminated soil present at the sites is currently estimated to total 323,000 cubic yards. The excavated soil would be transported for final disposal at a licensed, off-site facility.

Alternative 6: Partial Excavation, With Off-Site Disposal

COST: $67.7 to 184.4 million TIME TO IMPLEMENT: 5 years

This alternative would involve the excavation of radium-contaminated soil to a depth of a few feet. Two separate depths of excavation, two (2) feet and five (5) feet, were used to develop cost estimates. Smaller volumes of soil (approximately 64,000 and 143,000 cubic yards, respectively), compared to Alternative 5, would be removed. As with Alternative 5, the excavated soil would be transported off-site for final disposal at a licensed facility. Since this alternative results in radium-contaminated soil remaining on private properties and public areas, engineering and institutional controls would be necessary to ensure the protection of human health.

Alternative 7: The Combined Approach

COST: $53.0 to 66.0 million TIME TO IMPLEMENT: 3 years

This alternative is essentially a combination of Alternatives 1, 2, 3, 5, and 6. Under Alternative 7, the actions to be implemented on a particular property would depend on the nature and extent of contamination on that property. These actions would include total excavation of the most extensively contaminated properties and limited and/or partial excavation at others; indoor and/or outdoor engineering controls at less contaminated properties to reduce exposure to radon, radon decay products, gamma radiation, and radium-contaminated soil; and institutional controls to ensure the effectiveness of the engineering controls. All actions would be designed to ensure protection of public health. Alternative 7 was developed to offer a comprehensive and fully implementable remedy to address public health risks at the sites.

Summary of Comparative Analysis of Alternatives

Evaluation Criteria

The seven alternatives noted above were evaluated using criteria derived from the National Contingency Plan (published in the Code of Federal Regulations at 40 CFR Part 300) and the Superfund Amendments and Reauthorization Act of 1986 (SARA). These criteria relate directly to factors mandated by SARA in Section 121, including Section 121 (b)(1)(A-G). The criteria are as follows:

- Protection of human health and the environment
- Compliance with legally applicable or relevant and appropriate requirements (ARARs)

- Reduction of the toxicity, mobility, or volume of hazardous substances
- Short-term effectiveness
- Long-term effectiveness and permanence
- Implementability
- Cost
- Community acceptance
- State acceptance

Comparisons

Table 4 summarizes the relative performance of the seven candidate alternatives in relation to the evaluation criteria. A comparative discussion of the major components of the alternatives, using the evaluation criteria, follows:

Protection of Human Health and the Environment

Protection of human health and the environment is the central mandate of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by SARA. Protection is achieved by reducing health and environmental threats and by taking appropriate action to ensure that, in the future, there would be no unacceptable risks to human health and the environment through any exposure pathway.

Alternatives 4 and 5 would be fully protective of human health and the environment.

To the extent that institutional controls would be effective, Alternatives 3, 6, and 7 would provide for protection of human health. For Alternatives 6 and 7, in instances where all contaminated soil is removed, these alternatives would be fully protective of human health and the environment, regardless of the effectiveness of institutional controls.

Under Alternatives 1 and 2, radon and radon decay product levels would be reduced only in the houses which currently have ventilation systems. However, as the temporary ventilation systems fail under Alternative 1, indoor concentrations of radon and radon decay products would return to pre-ventilation conditions. With the exception of the currently shielded houses, there also would be no reduction in gamma radiation exposure indoors. Outdoors, there would be no reduction in exposure to gamma radiation or the threat of direct contact with radium-contaminated soil.

The selected remedy would be fully protective of human health and the environment where all contaminated soil is excavated. At other properties where indoor engineering controls are installed, public health would be protected. However, where contaminated soil remains on-site in its current state, the risk to public health and the environment would remain.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Section 121(d) of CERCLA, as amended by SARA, requires that remedies for Superfund sites comply with Federal and State laws that are directly applicable and, therefore, legally enforceable. Remedies must also comply with the requirements of laws and regulations that are not applicable, but are relevant and appropriate; in other words, requirements that pertain to situations sufficiently similar to those encountered at a Superfund site such that their use is well suited to the site. Combined, these are referred to as "applicable or relevant and appropriate requirements" (ARARs).

No requirements have been determined to be applicable to the remediation of the sites. However, as noted earlier (see Table 3), the Federal regulations governing the cleanup of uranium mill tailings, 40 CFR 192, have been determined to be relevant and appropriate. Table 5 highlights the uranium mill tailings cleanup standards and summarizes additional ARARs for the two sites.

The requirements of 40 CFR 192, Subpart B- "Standards for Cleanup of Land and Buildings Contaminated with Residual Radioactive Material from Inactive Uranium Processing Sites" are that as a result of residual radioactive materials from any designated processing site:

> The concentration of radium^{226} in land averaged over any area of 100 square meters (120 square yards) shall not exceed the background level by more than-
>
> (1) 5 picoCuries per gram [pCi/g] averaged over the first 15 centimeters (cm) [6 inches] of soil below the surface, and
>
> (2) 15 pCi/g, averaged over 15 cm [6 inch] thick layers of soil more than 15 cm below the surface.

The health ARARs include an annual average exposure of 4 picoCuries per liter (pCi/l) of air for radon (see Table 3). This exposure, which is a guideline, corresponds approximately to an annual average exposure of 0.02 WL for radon decay products. The 0.02 WL for radon decay products and the 20 μR/hr above background for gamma radiation are also standards as defined in 40 CFR 192.

Table 6 identifies the degree to which the various alternatives comply with each of the listed ARARs. Inspection of Table 6 indicates that Alternative 5 complies with all the ARARs. Alternative 4 also complies with all ARARs with the exception of the alternate cap design for the parks, where the alternate design may fail the longevity requirement.

The selected remedy also complies fully with the soil cleanup and public health ARARs, but only for those properties where no contaminated soil will remain following remediation. At properties where indoor engineering controls are installed, compliance with some public health ARARs will be achieved, however, no soil cleanup standards will be met. At the remaining properties, neither health nor soil cleanup goals will be met.

Alternatives 6 and 7 comply with the public health ARARs, assuming that institutional controls are effective. Alternatives 6 and 7 also comply with the soil cleanup standards, however, only for a limited number of properties.

Alternative 2 complies with some health ARARs, however, it does not meet any soil cleanup standards. Alternative 1 fails to comply with public health and soil cleanup ARARs.

Only Alternatives 4 and 5 fully comply with all the ARARs as identified. Alternatives 2, 3, 6, 7, and the selected remedy are all interim remedies and would require additional measures to comply with all of the ARARs available for the sites.

Reduction of Toxicity, Mobility, or Volume

This evaluation criterion relates to the performance of a technology or remedial alternative in terms of eliminating or controlling risks posed by the toxicity, mobility, or volume of hazardous substances.

As radioactivity is an intrinsic property of the nuclides in the contaminated soil, its toxicity cannot be altered by treatment. Mobility and/or volume may be addressed by treatment, but as toxicity is not altered, such treatment does not provide a sufficient reduction in health risk or environmental threat. Therefore, none of the remedial alternatives that were considered satisfy this evaluation factor.

As previously noted, however, EPA is continuing to investigate technologies that might at some time prove useful in significantly reducing the volume of radium-contaminated soil necessary for off-site transport and disposal.[2] Preliminary results indicate that it is possible to use simple physical separation techniques to remove a portion of uncontaminated material, such as rocks and debris, from the contaminated soil. This physical separation will be conducted to reduce the volume of soil requiring off-site disposal. The uncontaminated material will remain on the site.

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[2] U.S. Environmental Protection Agency, Technological Approaches to the Cleanup of Radiologically Contaminated Superfund Sites, (EPA/540/2-88/002), August 1988.

Another of these experiments involves the use of chemical extraction techniques. EPA, in conjunction with NJDEP, will continue to evaluate the more promising methods to determine their potential usefulness for further remediation of the sites.

Short-Term Effectiveness

Short-term effectiveness measures how well an alternative is expected to perform, the time to achieve performance, and the potential adverse impacts of its implementation.

Alternatives 3, 4, 5, 6, 7, and the selected remedy provide effective short-term protection. The alternatives become effective as they are implemented at individual properties. Generally, the more quickly an alternative can be implemented, the greater the short-term effectiveness. Any adverse short-term impacts during remediation (such as the creation of dust) could be controlled by implementing dust suppression measures.

The selected remedy can be implemented very quickly for the indoor engineering controls. Also, the time estimated for completion of the excavation component of the selected remedy is shorter than that for the other excavation alternatives.

Alternatives 1 and 2 provide only very short-term effectiveness for the properties with temporary remedial systems. Within several years, as these systems fail under Alternative 1, and immediately, where no system currently exists in Alternatives 1 and 2, there would be no effective remediation.

Long-Term Effectiveness and Permanence

Long-term effectiveness and permanence address the long-term protection and reliability that an alternative affords. Table 7 lists the factors which are considered in the determination of long-term effectiveness and permanence. The table also provides a summary of each factor and an overall assessment of the effectiveness and permanence of each alternative.

Alternatives 4 and 5 are fully effective for the long-term, and are considered final remedial actions. For Alternative 4, only the standard design evaluated provides effective isolation for the minimum 200 years stipulated in the relevant and appropriate standards for these sites. Alternatives 3, 6, and 7 are not as effective as long-term remedies, since they rely on the use of engineering and institutional controls at many properties. Alternatives 6 and 7, however, do provide final and effective, long-term solutions at the large number of properties where the ARARs are achieved.

Alternatives 1 and 2 provide essentially no long-term effectiveness or permanence.

The selected remedy provides effective, long-term protection at the properties where public health and soil cleanup ARARs are achieved. Engineering controls, where implemented, would be only temporarily effective.

Implementability

Implementability considerations address how easy or difficult, feasible or infeasible, it would be to carry out a given alternative from design through construction and operation and maintenance.

The indoor remedial activities associated with Alternative 3 are generally straightforward to implement. The outdoor actions would involve some techniques that have not been attempted or fully demonstrated and, therefore, some difficulties may arise.

Alternatives 4, 5, 6, 7, and the selected remedy all involve the use of standard construction practices. That aspect of their implementation is expected to be straightforward.

The selected remedy entails the installation of indoor engineering controls and the implementation of straightforward construction methods. Hence, the selected remedy should be easy to implement.

As previously noted, however, the difficulty in guaranteeing interstate transportation and the continued availability of a disposal site for those alternatives requiring off-site disposal would directly affect their implementability.

In addition, alternatives 3, 6, and 7 involve the use of institutional controls. State, County and Municipal authorities would have to be involved in the process of developing and implementing the institutional controls. Any difficulty which may be encountered in coordination among the involved governmental agencies would affect the implementability of these alternatives.

Cost

Costs are evaluated in terms of remedial action costs, operation and maintenance costs, institutional control costs, and replacement costs. Table 2 presents a range of present worth cost estimates associated with each of the seven alternatives, with specific estimates for the above-mentioned factors.

With no further action taken, there is no additional cost associated with Alternative 1. Alternative 2 would consist entirely of operation and maintenance, and administration costs, whose present worth is estimated to be $5.0 million. Alternative 3 is estimated to cost a total of $20.8 million.

Depending on the type of containment selected for the Parks Alternative, the cost for Alternative 4 is estimated to range from $74.0 to $78.5 million, with the standard design being more expensive.

Alternative 5 is estimated to cost approximately $252.7 to $348.7 million. The range in estimates is attributed to marked differences for alternate transportation costs.

For Alternative 6, costs were estimated to be $67.7 to $86.6 million for a two-foot partial excavation option, and $142.1 to $184.4 million for a five-foot partial excavation option. Again, the range of the estimate is based on the substantial cost differences for alternate modes of transport.

Alternative 7, which is a combination of the above alternatives, is estimated to cost $53.0 to $66.0 million.

For the selected remedy, which represents a minor modification of Alternative 7, the estimated cost is $53.0 million. Although there is a cost reduction associated with the elimination of partial excavation, there is an equivalent, if not greater, cost increase associated with the inclusion of 3 additional core area properties for full excavation.

State Acceptance

The State Acceptance factor addresses the concern and degree of support that the State government has expressed regarding the remedial alternative being proposed.

The State of New Jersey supports the remedial actions called for by the selected remedy.

Community Acceptance

This evaluation factor addresses the degree to which members of the local community support the remedial alternatives being considered.

The community response to EPA's Proposed Plan was mixed. There is a consensus of support for that portion of the proposal that calls for full remediation of the most severely contaminated properties, especially the New Jersey pilot program properties where the residents have been relocated. The community generally approves of the implementation of the indoor engineering controls to reduce the risk from exposure to excessive indoor gamma radiation levels and/or radon gas concentrations. The community responded with considerable reservation, skepticism and, in many cases, complete opposition to the proposal to implement interim, or partial excavation remedies that were envisioned for many of the properties, including the public areas and parks. The implementation of institutional controls is also not supported by the towns or the public. Imposition of institutional controls is perceived as an additional financial burden that may be unfair and unenforceable.

The community has endured a long period of investigation and study, and supports EPA's commitment to action. However, the public prefers to support only those measures that are final remedies for the sites, and does not support partial excavation solutions.

Alternative 5 has received unanimous support, as it is a final remedy which complies with all ARARs. Even though short-term disruption to the community would be high, and with the uncertain availability of off-site disposal capacity, the public is fully supportive of this alternative.

Alternatives 1 and 2 have received little or no community support.

The community does support the implementation of indoor engineering controls, but, only as a short-term remedy until all the contaminated soil is finally removed from the sites.

Alternative 4 has no support in the Town of Montclair, and very little in Glen Ridge. The disruption to the community is perceived to be both socially and financially unacceptable.

Alternatives 6 and 7 are partially accepted by the public as these provide for complete remediation of a number of properties. Where the remedies are only partial, the community has expressed substantial reservations.

The selected remedy incorporates those components of Alternative 7 that received the most favorable response from the community. More than twenty of the most extensively contaminated properties are slated for full excavation, in addition to the four New Jersey pilot program properties. Limited excavation will also fully remediate a number of additional properties, and indoor engineering controls will be installed at all properties where radon and radon decay product concentrations and indoor gamma radiation levels exceed the health criteria. The community has shown support for all parts of this remedy.

SELECTED REMEDY

The following describes in detail the remedial action plan which the U.S. Environmental Protection Agency is selecting to implement at the sites. This selection is a modified version of Alternative 7 as presented in the Proposed Plan.

Description

The properties within the three study areas are grouped into the categories described below:

Category "I" Properties -- Core area properties which have extensive radium contamination throughout the property, including under and around the house foundation, have elevated levels of gamma radiation, and have concentrations of radon or radon decay products in excess of health guidelines;

Category "II" Properties -- Properties with basement wall or outdoor gamma radiation levels equal to or greater than 50 microRoentgens per hour and with extensive radium contamination;

Category "III" Properties -- Properties with radon, radon decay product, or gamma radiation levels above health guidelines and with limited, or "hot spot" radium contamination;

Category "IV" Properties -- Properties with soil contamination above cleanup standards, but with no radon, radon decay product, or gamma radiation levels above health guidelines;

Category "V" Properties -- Properties which have no detectable radium-contaminated soil present in excess of the soil cleanup standards;

NJDEP Pilot Program Properties -- Four properties partially excavated under the NJDEP pilot excavation program; and

Public Areas and Streets -- Areas not privately owned which have some degree of radium-contaminated soil present.

Based on currently available information, Table 8 presents an estimate of the number of properties in each category.

Category "I" Properties: Full Excavation

By definition, category "I" properties have the most extensive radium contamination, exhibit the greatest human health threats, and would be the most difficult to remedy with engineering and institutional controls alone.

Soil from approximately 23 category "I" properties will be excavated to achieve the requirements of 40 CFR 192, Subpart B. This includes the four partially excavated NJDEP pilot program properties. Based on sampling efforts, the NJDEP pilot program, and historical records, it is estimated that 41,000 cubic yards of contaminated soil will be excavated from the category "I" properties. This volume estimate may change, however, based on additional information obtained during remedial design activities. The excavated soil will be disposed of at a licensed, off-site facility and replaced with clean soil.

As mentioned earlier, preliminary results from EPA treatment technology studies indicate that it may be possible to physically remove a portion of uncontaminated material from the contaminated soil using simple separation techniques. To reduce the volume of soil requiring off-site disposal, these physical separation techniques, such as the removal of uncontaminated rocks and debris, will be used to the maximum extent practical at the Montclair/West Orange and Glen Ridge sites. This uncontaminated material can then be used as fill for excavated properties.

During excavation, residents of the category "I" properties will have to temporarily relocate at government expense. However, excavation will occur in a pattern designed to prevent any long-term disruption to individual residents or the community. For example, a limited number of properties could be excavated at a time, with the excavated soil being immediately transported for off-site disposal, thereby eliminating the need for any on-site storage. Clean soil, including uncontaminated material segregated using physical separation techniques, will replace the excavated soil and be landscaped according to the needs of the individual properties.

Should circumstances arise to prevent the continuation of off-site disposal, excavation activities will cease and any material not yet disposed of would be returned to the site. At that point, the properties and houses would receive engineering controls designed to protect human health to the maximum extent practicable. If it were found that such controls could not effectively protect human health, the Federal government would offer to purchase the affected properties and provide the residents the option of permanent relocation.

Remediation of category "I" properties reflects Alternative 5 identified in the supplemental feasibility study report.

Category "II" Properties: Indoor Engineering Controls, Limited Excavation (Where Appropriate)

Remediation at some of the approximately 75 category "II" properties will consist of indoor engineering controls to reduce exposures to radon gas and decay products, and gamma radiation.

These activities will occur simultaneously with the remediation of the category "I" properties. EPA had proposed to excavate a limited amount of surface soil from these properties and establish institutional controls to protect residents from exposure to contaminated soil remaining at depth. However, based on public comment, EPA is deferring a decision on any partial excavation activities pending further input from area residents and town officials. Therefore, radium-contaminated soil will remain on a number of category "II" properties with outdoor gamma radiation levels exceeding the health guidelines.

Where necessary, state-of-the-art radon control systems will be installed in houses. These systems, which will be designed on a house-to-house basis, are intended to capture radon gas before it enters a house. Similar systems have been successfully installed and used in houses in the Montclair and Glen Ridge study areas, as well as in other parts of the country affected by naturally occurring radon. A typical system diverts radon gas from beneath a basement slab, conveys the gas through PVC (polyvinyl chloride) plastic piping, and ventilates the radon to the outdoor air. Radon gas can be safely dissipated in outdoor air, and will not pose a health threat since outdoor accumulations would not occur.

A number of houses may require indoor gamma radiation shielding. Lead or steel sheeting will be placed on basement floors and/or walls. Concrete could be used in other areas, such as crawl-spaces. Where shielding is installed in a basement, it will be covered by either carpeting or wallboard.

In some cases, it may be possible to excavate a limited amount of soil from category "II" properties, and thereby fully remove all of the radium-contaminated soil present. This limited excavation is intended to remove all radium-contaminated soil from a property and will only be undertaken if the soil cleanup standards can be achieved. It is estimated that radium-contaminated soil will be excavated to a depth of a few feet, and that the volume excavated from all of the limited excavation properties will total about 4,000 cubic yards. This volume estimate could change, however, based on additional information obtained during remedial design activities.

As previously noted, radium-contaminated material may also have been mixed with Portland cement and used to make sidewalks or foundations. Where necessary, these materials will be removed and appropriately replaced. Excavated material will be disposed of at a licensed, off-site facility. As with the category "I" properties, physical separation techniques will be used to the maximum extent practical.

In a few instances, engineering and/or construction considerations may warrant the full excavation of a limited number of category "II" properties. For example, where category "I" properties flank a category "II" property, it may be prudent to fully excavate the category "II" property. At this time, a few properties in the Montclair study area are located between category "I" properties. These category "II" property residents may then have to temporarily relocate at government expense during the remedial activity. However, as with the category "I" properties, excavation will be designed to minimize disruption to the residents and the community. Remediation of those properties where all radium-contaminated soil is removed reflects Alternative 5. It is estimated that approximately 3,500 cubic yards of soil will be excavated from these three properties. This volume estimate may change, however, based on additional information obtained during remedial design activities.

EPA had proposed to establish institutional controls at properties where radium-contaminated soil would remain to ensure the effectiveness of the indoor engineering controls, as well as to prevent exposure to any contaminated soil lying at or below the ground surface. However, as previously discussed, a decision on institutional controls is being deferred pending further comment from area residents and town officials.

Category "III" Properties: Indoor Engineering Controls, Limited, or "Hot Spot" Excavation (Where Appropriate)

The approximately 65 category "III" properties generally have more limited, or "hot spot", contamination present. For these properties, indoor engineering controls, as described for the category "II" properties, might be employed. As with the category "II" properties, in some cases, it may be possible to remove hot spots from a category "III" property such that the concentration of radium^{226} attains the 40 CFR 192 soil cleanup standards. Again, no excavation will be undertaken unless the small volume of soil removed will provide a final remedy to those properties. For those properties where all radium-contaminated soil is removed, the remediation reflects Alternative 5.

It is not anticipated that any category "III" property residents will have to consider temporary relocation. As with a number of the category "II" properties, there will be radium-contaminated soil remaining at some category "III" properties with outdoor gamma radiation levels exceeding health guidelines. Remedial actions at these properties, and similar category "II" properties, will be addressed in subsequent Records of Decision, pending additional public comment.

Category "IV" Properties: Additional Monitoring

Category "IV" properties may have radium-contaminated soil present above soil cleanup standards, but exhibit no radon gas or radon decay product concentrations in excess of the health guidelines. Gamma radiation levels, while elevated above background, are also within the health guidelines. This could be a result of low concentrations of radium in the soil near the ground surface, or higher concentrations at depths where the overlying soil acts to shield the gamma radiation. Further work must be done during remedial design activities to determine the cause of the elevated gamma radiation levels.

Based on the results of the design testing, it is envisioned that most of the category "IV" properties will be reclassified. If radium contamination in excess of soil cleanup standards is not found, a property will be reclassified as category "V". Remediation of these category "IV" properties reflects Alternative 1. If it is determined that significant radium contamination is present below the surface, a decision involving appropriate remedial measures for those properties will be made in subsequent Records of Decision.

Category "V" Properties: No Further Action Required

Those properties within the study areas which are confirmed during remedial design activities to have no radium-contaminated soil present above the 40 CFR 192 soil cleanup standards will be classified as category "V". These properties will need no further study or remedial action. This reflects Alternative 1. However, should contamination in excess of soil cleanup standards be found during any design or construction activities, a property will be reclassified as appropriate.

NJDEP Pilot Program Properties

Five properties from the NJDEP pilot excavation program remain partially excavated in Montclair. The residents of four of these properties are temporarily relocated at the present time. These four properties will receive the remediation described for category "I" properties. In addition, remediation will be completed at the fifth property. An estimated 7,000 cubic yards of contaminated soil will be excavated from the pilot program properties. (This volume is included in the estimate given for category "I"). Remediation of these properties reflects Alternative 5.

Additional Properties

Some properties within the study areas have received limited, or no, testing to date. This can be due to a number of reasons, including property access denials. It is assumed that some of these properties will be included in the categories requiring remedial action, but that remediation will consist primarily of engineering controls or limited soil removal. These additional properties are not expected to significantly affect the scope of the remedial action.

Cost Estimate

The cost of the selected remedial action is estimated to be $53 million for the two National Priorities List sites combined. This includes the costs of excavation, temporary resident relocation, and property restoration; transportation; disposal; monitoring; radon mitigation; and gamma radiation shielding. The nature of any future remedial activities not specified in this remedy has yet to be determined and, therefore, the associated costs have not been estimated. The cost estimate for this modified remedy is very similar to that presented for Alternative 7.

Because the partial surficial excavation has been eliminated from this particular remedial phase, there is a slight cost savings compared with Alternative 7. However, additional costs are incurred by including the category "II" properties located between category "I" properties in the full excavation scheme. The volume reduction associated with eliminating partial excavation is offset by the increased soil volume resulting from fully excavating the few additional category "II" properties.

Thus, the cost for this modified selection is equal to, if not slightly higher than the original cost estimate provided for Alternative 7.

STATUTORY DETERMINATIONS

Superfund remedy selection is based on the Superfund Amendments and Reauthorization Act of 1986 (SARA) and the regulations contained in the National Contingency Plan. SARA requires that EPA utilize permanent solutions and alternative treatment technologies to the maximum extent practicable.

Protection of Human Health and the Environment

For a majority of site properties, this remedy does fully protect human health and the environment. It is estimated that no radium-contaminated soil above the cleanup standards will remain on almost two-thirds of the approximately 750 properties within the boundaries of these two Superfund sites. Implementation of this remedy will eliminate additional risks attributable to exposures to indoor or outdoor gamma radiation, indoor radon gas or radon decay products, inhalation and/or ingestion of contaminated soil, and ingestion of contaminated vegetables grown in contaminated soil.

As noted earlier, this remedy also provides for interim measures at additional properties within the sites. For those properties, this remedy will serve to reduce some of the risks attributable to the effects of the radioactive decay of the radium-contaminated soil, and so is at least partially protective of public health. This remedy, in all cases, will comply with the ARARs for exposure to indoor gamma radiation and the inhalation of radon gas or radon decay products. Final, or additional remedial measures, to be selected in subsequent Records of Decision, will more fully provide for the protection of public health and the environment at those properties with interim remedial measures implemented under this Record of Decision.

There are few short-term risks associated with the implementation of this remedy. Where excavation occurs, dust suppression measures can reduce the risk of inhalation of radium-contaminated dust. For those properties where this remedy provides only an interim solution, some additional short-term risk does exist from outdoor exposure to gamma radiation, ingestion and/or inhalation of contaminated soil, and ingestion of vegetables grown in contaminated soil. Public comment indicates that this short-term risk is not unacceptable. In addition, no adverse cross-media impacts are expected from the remedy.

Attainment of ARARs

As presented earlier, the primary ARARs for these two sites are contained in 40 CFR 192, Subpart B. This regulation deals with the cleanup of inactive uranium processing facilities. EPA has determined that while these standards are not legally applicable, they are relevant and appropriate to the situation at the Montclair/West Orange and Glen Ridge sites. Table 5 lists and summarizes these standards and other ARARs that may be pertinent during the implementation of this remedial action.

When implemented, almost two-thirds of the properties within the study areas will comply with public health and soil cleanup ARARs. In addition, all properties where interim remedies are instituted will comply with the indoor radon decay product and gamma radiation ARARs. Those properties that do not comply with outdoor gamma radiation and soil cleanup ARARs will be addressed in subsequent Records of Decision.

Cost Effectiveness

The selected remedy is cost-effective because it provides overall effectiveness relative to its cost. The remedy provides for complete protection of public health and the environment at a great number of the properties within the two sites. It has been examined closely to ensure that it is the least costly means of achieving the required level of protection. Additionally, the cost efficiency of this selected remedy will be furthered by value engineering conducted during remedial design.

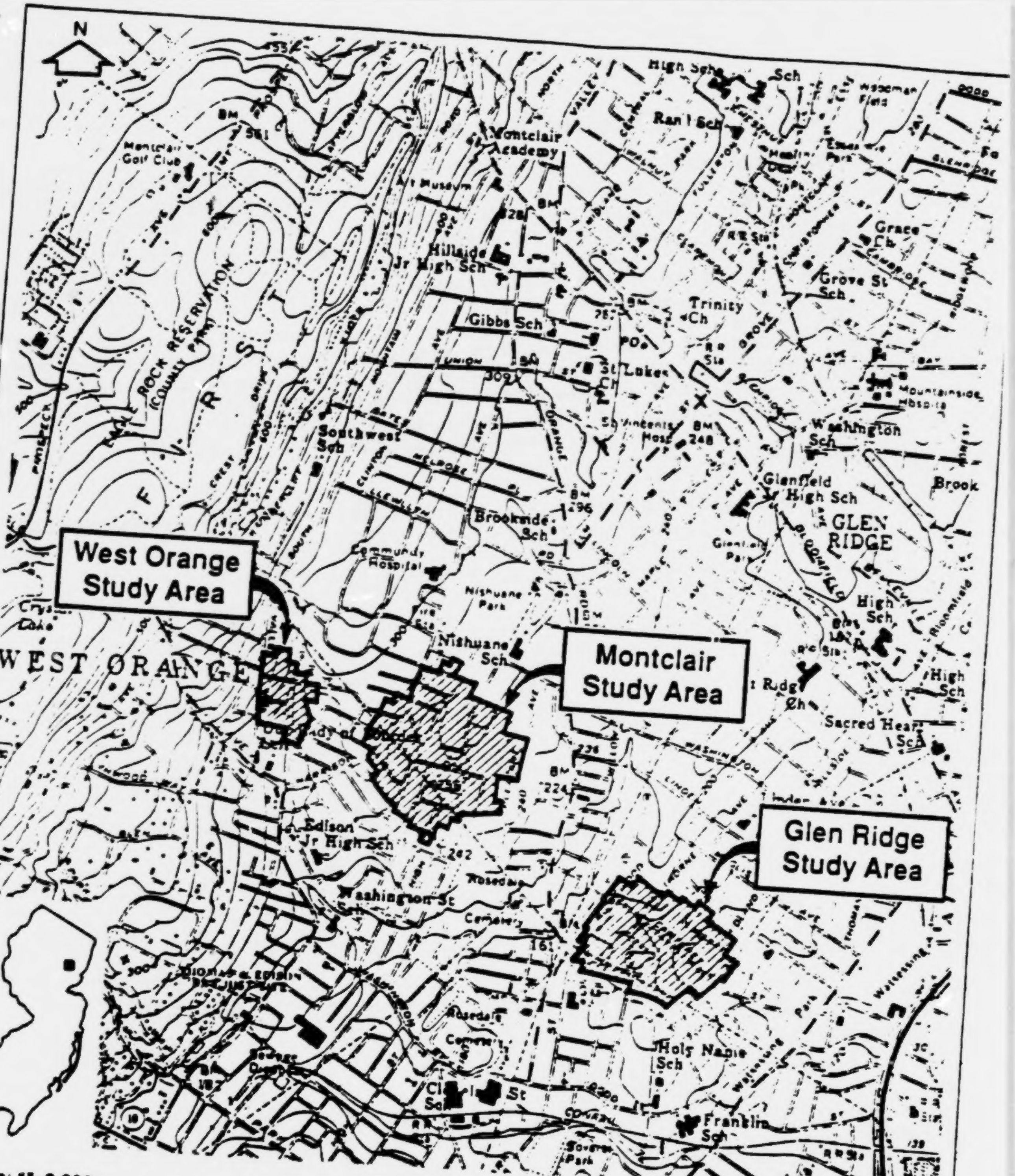
Utilization of Permanent Solutions and Alternate Treatment or Resource Recovery Technologies to the Maximum Extent Practicable

EPA and the State of New Jersey have determined that the selected remedy represents the maximum extent to which permanent solutions and currently available treatment technologies can be utilized in a cost-effective manner for this phase of the source control remedial action at the Montclair/West Orange and Glen Ridge sites. Of those alternatives that are protective of human health and the environment and comply with ARARs, EPA and the State of New Jersey have determined that the selected remedy provides the best balance of trade-offs in terms of long-term effectiveness and permanence, short-term effectiveness, implementability, and cost, and considering the statutory preference for treatment as a principal element and State and community acceptance.

While this remedy does not offer as high a degree of long-term effectiveness as the complete excavation of all contaminated soils, it will allow for exploration of additional disposal capacity and development of treatment technologies. For the majority of the properties, the selected remedy provides the same long-term effectiveness as does Alternative 5. Alternative 4, which also offers a final solution, is, however, totally unacceptable to the public and would be the most difficult to implement.

None of the alternatives reduces the toxicity, mobility, or volume of the contaminated material. Selection of this remedy, however, will allow for further exploration and investigation of treatment techniques to reduce the volume of material requiring off-site disposal. Substantial cost savings would be realized by reducing the volume of contaminated material requiring transportation and disposal.

Experience has shown how difficult it can be to assure transportation and disposal for large amounts of contaminated material. The selected remedy limits the amount of soil for off-site disposal, while also minimizing the disruption to the residential communities. Thus, it is somewhat more implementable and can be accomplished more quickly than other equivalent remedies. In addition, the cost of the selected remedy is less than that of these other remedies. EPA and the State of New Jersey believe that this remedy satisfies public concerns that remedial action begin at the sites, actions that provide for final and complete remediation of properties, while giving additional opportunity for public comment. Therefore, the selected remedy is determined to be the most appropriate for initiating remedial action at the Montclair/West Orange and Glen Ridge Radium sites.



Scale: 1"=2,000'

Reproduced from best available copy.

Source: U.S.G.S. Orange, N.J. Quadrangle

Figure 1

Location of Three Study Areas

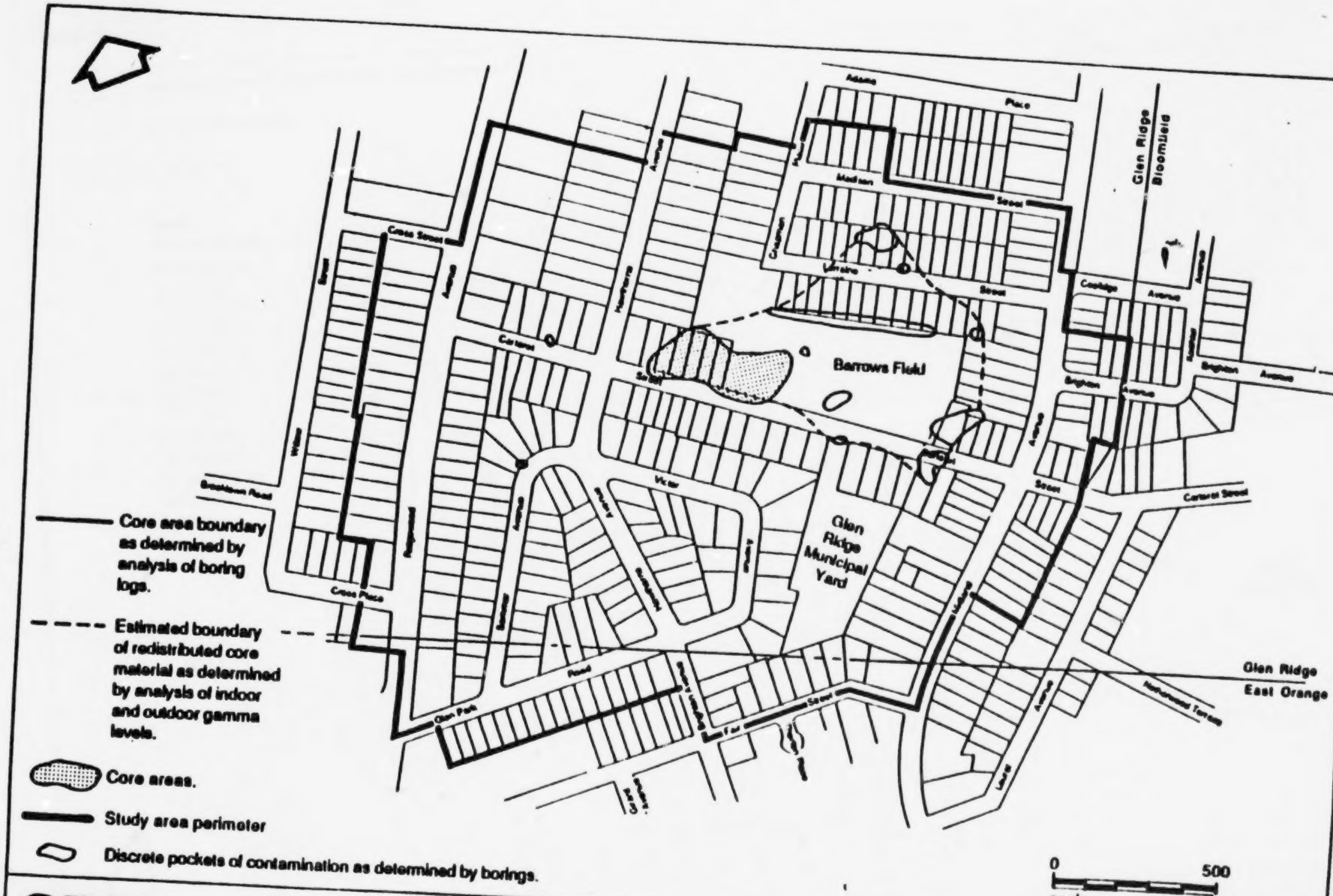
Montclair/West Orange and Glen Ridge Radium Sites

28.a

Preference for Treatment as a Principal Element

The principal threat at these sites is the generation of excess concentrations of radon gas and radon decay products indoors, which are subsequently inhaled by the residents of those houses. In addition, there are threats from exposure to excess levels of indoor and/or outdoor gamma radiation, ingestion and/or inhalation of radium-contaminated soil, and ingestion of vegetables grown in contaminated soil. Because there is no treatment available that destroys the radioactive source of these threats, the selected remedy does not satisfy the statutory preference for treatment as the principal element. The remedy does reduce the exposure to all excess indoor concentrations of radon and radon decay products. It also provides for complete remediation at a number of properties, thereby reducing the exposure risk from all pathways.

The Responsiveness Summary which addresses written and verbal comments follows the Figures and Tables.



CDM

environmental engineers, scientists, planners & management consultants

Figure 2

Glen Ridge Study Area

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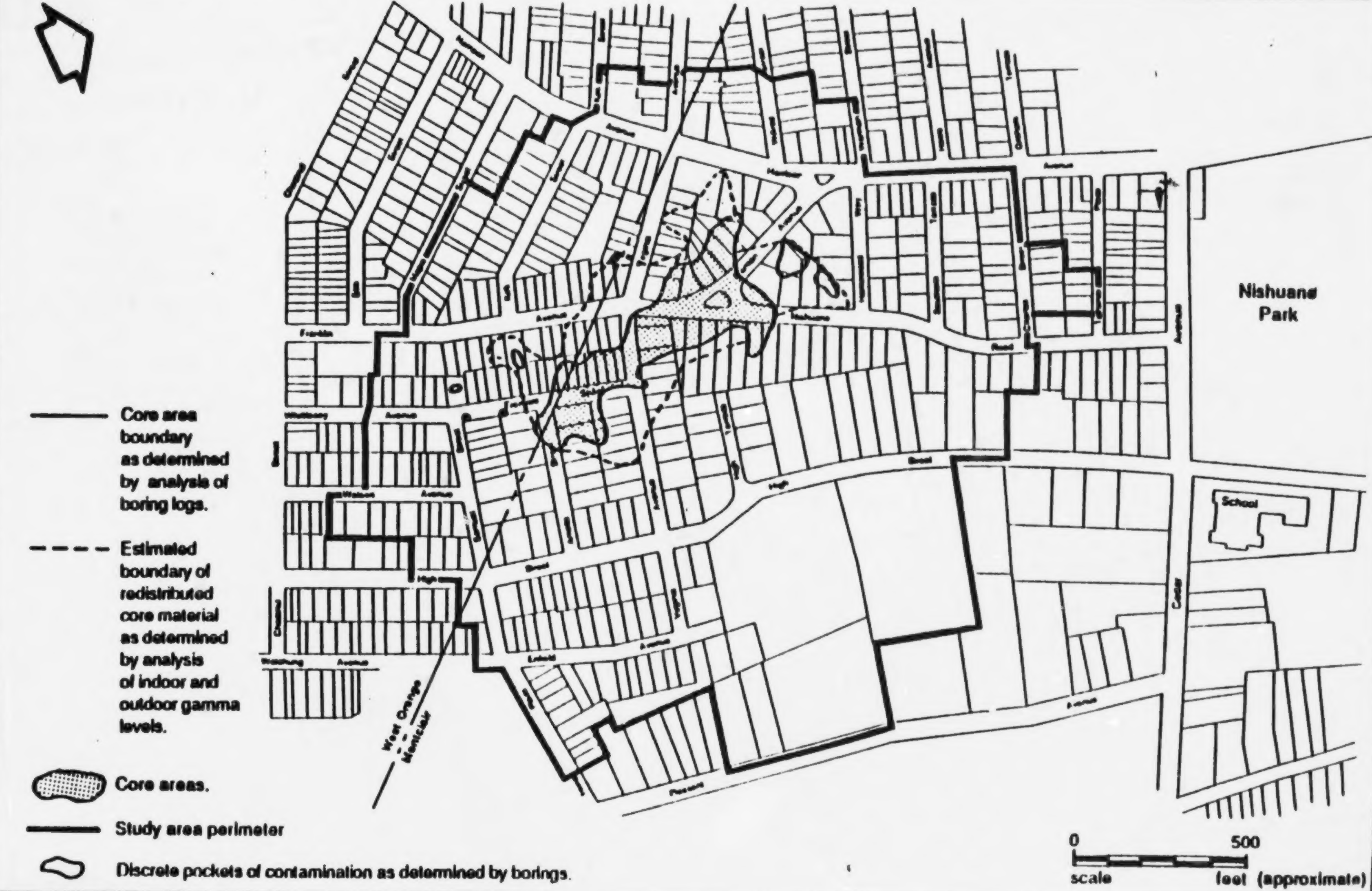
best available copy.

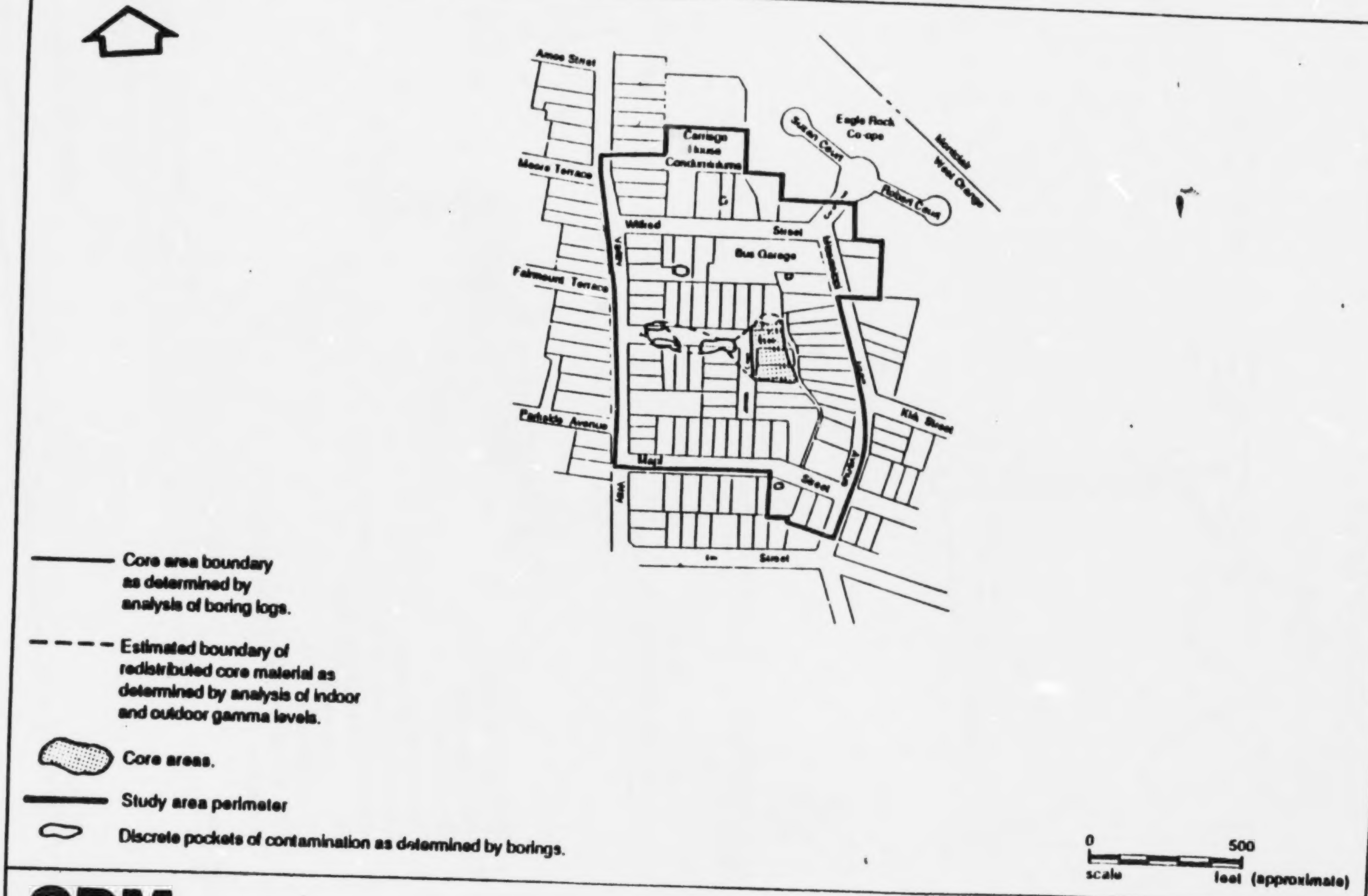

Nishuane
Park
School
Franklin
Avenue
Road
High
Cedar
Avenue
West Orange
Montclair
Core area boundary as determined by analysis of boring logs.
Estimated boundary of redistributed core material as determined by analysis of indoor and outdoor gamma levels.
Core areas.
Study area perimeter
Discrete pockets of contamination as determined by borings.
0
500
scale
feet (approximate)

CDM

*environmental engineers, scientists,
planners & management consultants*

Figure 3

Montclair Study Area



— Core area boundary as determined by analysis of boring logs.

- - - - Estimated boundary of redistributed core material as determined by analysis of indoor and outdoor gamma levels.

▨ Core areas.

━ Study area perimeter

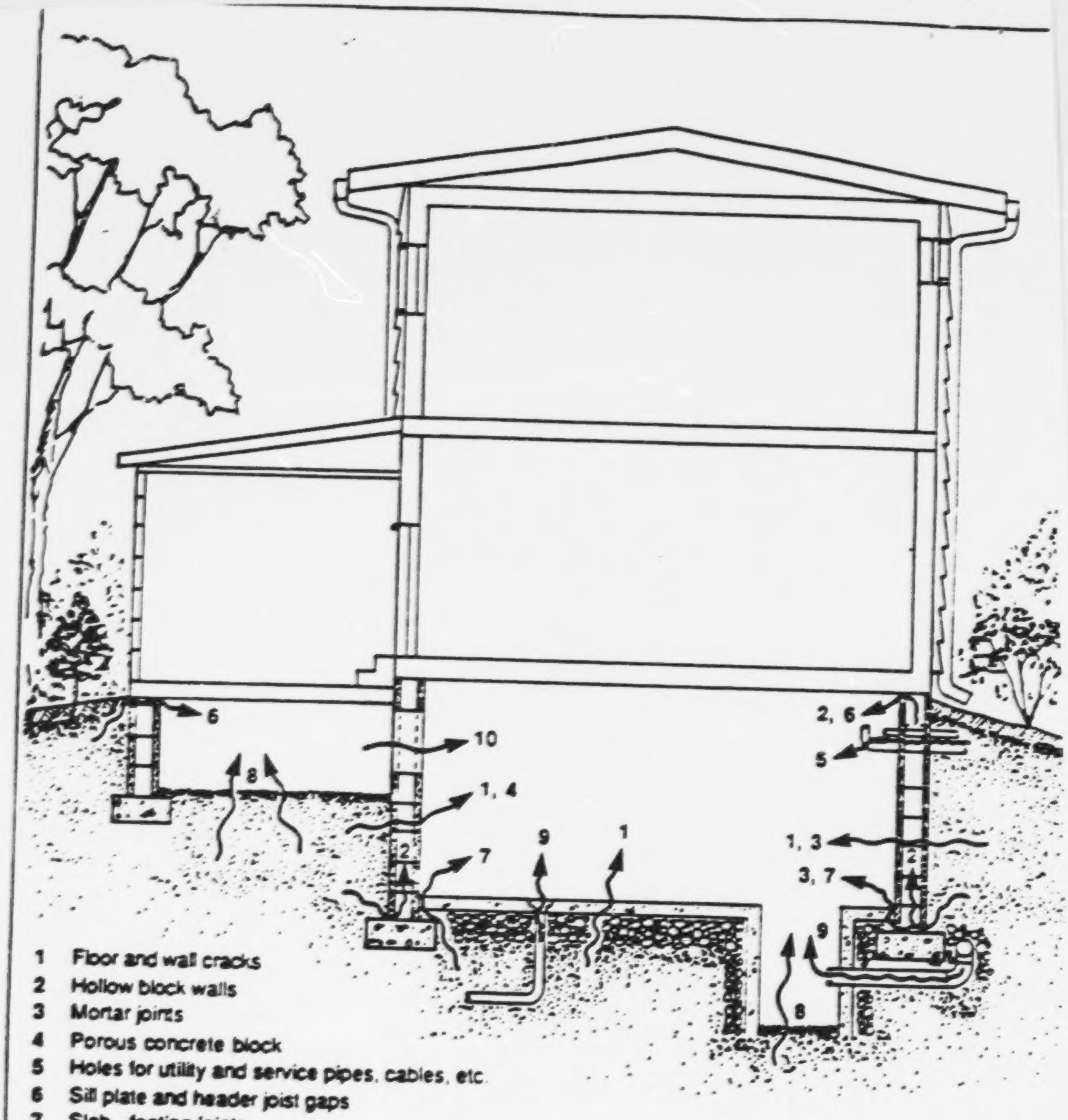
○ Discrete pockets of contamination as determined by borings.

CDM

environmental engineers, scientists, planners & management consultants

Figure 4

West Orange Study Area



1 Floor and wall cracks
2 Hollow block walls
3 Mortar joints
4 Porous concrete block
5 Holes for utility and service pipes, cables, etc.
6 Sill plate and header joist gaps
7 Slab - footing joints
8 Exposed soil
9 Drains, sumps and weeping(drain) tiles
10 Crawl spaces

Not to Scale

Adapted from "Radon Reduction Techniques for Detached Houses: Technical Guidance," USEPA

Figure 5

Typical Radon Entry Routes

Montclair/West Orange and Glen Ridge Radium Sites

TABLE 1

RADIATION UNITS

Type	Units of Measure	MWG Site Background	EPA Guidelines
Radon	pico Curie per liter (pCi/l)	<1 pCi/l	4 pCi/l
Radon Progeny	Working Level (WL)	0.002 WL	0.02 WL
Gamma Radiation Rate	MicroRoentgen per Hour (uR/hr)	8.3 uR/hr	20 uR/hr above Background
Annual Gamma Radiation Exposure (to man)	Millirem per Year (mrem/yr.)	86 mrem/yr.	170 mrem/yr. above Background
Radionuclide Activity (concentration) in soil	pico Curie per gram (pCi/g)	< 1 pCi/g	5 pCi/g in first 6 inches 15 pCi/g in subsurface soil

Equivalents

1WL = 200 pCi/l
1 chest x-ray = 20-25 mrem
1 pCi/g of Radium in soil = 1×10^3 ppb

Table 2
Summary of the Cost of Each Alternative (million dollars)[d]

	1	2	3	4	5	6		7
						Partial Excavation Offsite Disposal		
	No Action	Continue Existing	Engineering Controls	Park Alternative	Full Excavation Offsite Disposal	Two Foot Excavation	Five Foot Excavation	Combination Alternative
Costs Incurred During Remediation								
Engineering/construction								
- Construction/restoration	-	-	11.3	-	-	6.7	6.7	4.7
- Excavation/restoration	-	-	-	40.1[a]	83.8[a]	19.0[a]	51.6[a]	16.6[a]
- Transportation	-	-	-	0.7	83.3-179.3[c]	16.8-35.7[c]	36.9-79.2[c]	11.7-24.7[c]
- Disposal	-	-	-	12.6-17.3[b]	80.8	16.1	35.7	11.1
- Relocation	-	-	-	11.9	1.1	0.8	1.1	0.3
- Police/security/traffic	-	-	0.7	0.6	0.9	0.3	0.9	0.3
- Administration of alternative	-	-	2.4	2.0	2.8	1.6	2.8	1.9
Costs Incurred after Remediation								
O&M and monitoring	-	1.9	3.1	1.0	-	3.1	3.1	3.1
Five year reviews	-	0.05	0.16	0.1	-	0.16	0.16	0.16
Administration of Institutional Controls	-	3.1	3.1	5.0	-	3.1	3.1	3.1
Potential for future remedial actions	-	High	High	0	0	High	Medium	Medium
Total	0	$5.0**	$20.8**	$74.0-78.5	$252.7-348.7	$67.7-86.6**	$142.1-184.4	$53.0-66.0**

[a] Excavation costs vary according to the degree of contamination ($120/yd^3 or $300/yd^3). The higher costs would apply to houses with the most contamination; i.e., the 163 properties above health guidelines.

[b] Lower cost is for "alternate" cap, higher cost is for 10.5 foot "standard" cap.

[c] Lower cost is for rail transport; higher cost is for trucking

[d] Costs presented are present worth based on a 10 percent interest rate over a 10 yr. period.

**Should anticipate spending from $74 to $250 million to implement final remedy.

TABLE 3

SUMMARY OF EPA CRITERIA[3,4,5]

HEALTH GUIDELINES

Topic	Units of Measure	Value
Radon	picoCuries/liter (pCi/l)	4 pCi/l[3]
Radon Decay Products	Working Levels (WL)	0.02 WL[4]
Gamma Radiation Rate	microRoentgens/hour (μR/hr)	20 μR/hr above Background[4]

SOIL CLEANUP STANDARDS

Radium Concentration in Soil	picoCuries/gram (pCi/g)	5 pCi/g in first 15 centimeters (6 inches)[4,5] 15 pCi/g in subsurface soil[5]

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[3] 4.0 pCi/l is a guideline; a standard for radon has not been established. (At 50 percent equilibrium, an annual average exposure of 0.02 WL of radon decay products corresponds to an annual average exposure to a concentration of 4.0 picoCuries of radon per liter of air.)

[4] 40 CFR 192, "Standards for Cleanup of Land and Buildings Contaminated with Residual Radioactive Materials From Inactive Uranium Processing Sites"

[5] Averaged over 100 square meters (120 square yards)

TABLE 4
Overall Evaluation of the Alternatives

	Alternative						
	1	2	3	4	5	6	7
Compliance with ARARs	Does not comply with any ARARs	Does not comply with most ARARs	Does not comply with soil ARAR	Complies with all ARARs	Complies with all ARARs	Does not comply with soil ARAR	Does not comply with soil ARAR
Reduction in toxicity, mobility, or volume	None	None	None	None	None	None	None
Above-background risk remaining after remediation (no. of excess deaths per 1,000 people exposed)	3-367	3-36	2.6-18	0.9-1.6	0.9-1.6	2.6-17	1.3-8.5
Potential short-term risks	None	Some	Low	Medium	High	High	High
Time to implement (years)	NA	NA	4.8	4	5.6	3.2 (2ft option) 5.4 (5ft option)	3.2
Long-term effectiveness and permanence	Not effective	Not effective	Temporarily effective	Effective and Final	Effective and Final	Temporarily effective (2ft) May be effective for long term (5ft)	Temporarily effective Effective and final for Category I & certain other properties
Implementability	NA	NA	Few obstacles	Possibly major obstacles	Possibly major obstacles	Possibly major obstacles	Possibly major obstacles
Cost in millions	0	5.0	20.8	74.0-78.5	252.7-348.7	67.7-86.6 (2ft) 142.1-184.4 (5ft)	53.0-66.0
Overall evaluation for protectiveness	No protection provided	Not adequate	Provides short-term protection	Protective of public health and	Protective of public health and	Provides short term protection of public	Provides short term protection

Table 5
Summary of Major ARARs

Type of requirement	ARAR	Source of ARAR	Highest value measured on site	Average background
PUBLIC HEALTH				
•Radon Decay Products	0.02 WL (as an annual average)	40 CFR 192; EPA guidance	1.5 WL	0.002 WL
•Gamma radiation	20 μR/hr above background	40 CFR 192; EPA guidance	1,000 μR/hr	8.3 μR/hr
•Maximum exposure to radiation	0.17 rem/yr above background	EPA guidance; FRC report	2.1 rem/yr[1] (estimated using maximum risk scenario)	0.073 rem/yr[1]
•Ingestion of soil	none			
•Ingestion of vegetables	40 pCi/g of Ra-226 in soil	NCRP Report No. 77	1,500 pCi/g surface 4,545 pCi/g subsurface	1 pCi/g
OCCUPATIONAL	(See appendix B)	10 CFR 20; N.J.A.C. 7.28		
CLEANUP OF LANDS				
•Ra-226 and Th-230	5 pCi/g above background at surface[2]; 15 pCi/g above background at subsurface[2]	40 CFR 192; DOE 5480-1A	1,500 pCi/g surface; 4545 pCi/g subsurface	1 pCi/g
CLEANUP OF SURFACES	(See appendix B)	NRC Reg. Guide 1.86		
LAND DISPOSAL				
•Longevity	At least 200 yrs.	40 CFR 192		
•Radon emission rate	20 pCi/m^2/sec.	40 CFR 192	574 pCi/m^2/sec.	<1 pCi/m^2/sec.
•Design	(See appendix B)	40 CFR 264; N.J.A.C. 7:26-11.4, 11.7		
•Correction and prevention of ground water contamination	(See appendix B)	40 CFR 192		
TRANSPORTATION	(See appendix B)	49 CFR 173		
ENVIRONMENTAL				
•Soluble Ra-226 in:				
- Drinking water	5 pCi/l (Ra-226 and Ra-228 combined)	40 CFR 141; N.J.A.C. 7:9-6.6	1.22 pCi/l	0.2 pCi/l
- Ground water	30 pCi/l[3]	10 CFR 20; N.J.A.C. 7:28-6.5	11.8 pCi/l	0.5 pCi/l
- Surface water	30 pCi/l	N.J.A.C. 7:28-6.5	<1 pCi/l	0.1-0.5 pCi/l
- Air	0.003 pCi/l	10 CFR 20; N.J.A.C. 7:28-6.5	Not measured	NA
•Soluble Th-230 in air	0.00008 pCi/l	10 CFR 20; N.J.A.C. 7:28-6.5	0.00004 pCi/l (Total gross alpha)	<0.000001 pCi/l
HISTORIC DISTRICT	(See appendix B)	National Historic Preservation Act of 1966		

[1] Estimated using indoor/outdoor gamma measurements. Does not include exposure to radon decay products.

[2] Averaged over 100 square meter area.

[3] If classified as a drinking water aquifer, limit is 5 pCi/l for Ra-226 and Ra-228 combined.

TABLE 6
Compliance with ARARs

ARAR	Alternative						
	1	2	3	4	5	6	7
PUBLIC HEALTH							
Radon decay products	Does not comply	Not for all houses	Complies	Complies	Complies	Complies	Complies
Gamma radiation	Does not comply	Does not comply	Complies	Complies	Complies	Complies	Complies
Radionuclides in soil	Does not comply	Does not comply	Complies, with Institutional Controls	Complies	Complies	Complies, with Institutional Controls	Complies, with Institutional Controls
CLEANUP of lands and buildings contaminated with radioactive material	Does not comply	Does not comply	Does not comply	Complies	Complies	Does not comply (2ft) Complies for some properties (5ft)	Complies for Category I and certain other properties
DISPOSAL	NA	NA	NA	Std. design complies Alt. design may not comply	Will comply with host state requirements	Will comply with host state requirements	Will comply with host state requirements
TRANSPORTATION	NA	NA	NA	Complies	Complies	Complies	Complies
ENVIRONMENTAL drinking water, ground and surface waters, outdoor air	Complies	Complies	Complies	Complies	Complies	Complies	Complies
HISTORIC DISTRICT	No impact	Minimal impact	Possible impact	Possible impact	Possible impact	Possible impact	Possible impact
SUMMARY	Does not comply with Public Health or soil cleanup ARARs	Does not comply with some Public Health ARAR's or the soil cleanup ARAR	Complies with Public Health ARAR's Does not comply with soil cleanup ARAR	Complies with all ARARs (std. design) Complies with all but longevity requirement (alt. design)	Complies with all ARARs	Complies with Public Health ARAR's Does not comply with soil ARAR (2ft) 5 foot option complies with soil ARAR on some properties	Complies with Public Health ARAR's Complies with soil ARAR on Category I and certain other properties

TABLE 7
Evaluation of Long-Term Effectiveness and Permanence

FACTOR	Alternative						
	1	2	3	4	5	6	7
Permanence	Final	Interim	Interim	Final	Final	Interim (5 ft could be final on some properties)	Interim (Category I* properties are final)
Magnitude of residual risk	High	High	Medium	None	None	Medium (2 ft) Low (5 ft)	Medium/Low
Type/degree of long-term mamagement	None	Institutional controls that are difficult to implement	Institutional controls that are difficult to implement	Institutional controls on site that are easy to implement	Institutional controls off site that are easy to implement	Institutional controls that are difficult to implement	None (Category I* properties) Institutional controls that are difficult to implement
Long-term reliability of institutional controls	NA	Not reliable	Not reliable	Reliable	Reliable	Not reliable (2 ft) More reliable (5 ft)	Not reliable
Human exposure	High	High	Medium	Low	Low	Medium (2ft) Low (5 ft)	Medium/Low Low (Category I* properties)
Environmental exposure	High	High	High	Low	Low	High (2 ft) Medium (5 ft)	Medium
Long- term relibility of engineering control	NA	Not reliable	Unknown	Reliable (std. design) At least 30 yrs (alt. design)	Reliable	Unknown	Unknown Reliable (Category I* properties)
Need for replacement of remedy	NA	Definite	Definite	Not likely	Not likely	Definite (2 ft) Possible (5 ft)	Possible Not likely (Category I* properties)
Summary	Not effective	Not effective	Temporarily effective	Final and effective (std. design) Effective but not Final (alt. design)	Final and effective	Temporarily effective (2 ft) May be effective (5 ft)	Temporarily effective Final and Effective (Category I* properties)

* Includes certain properties in other categories.

TABLE 8

ESTIMATED NUMBER OF PROPERTIES IN CATEGORIES

Category	Study Area			Total
	MONTCLAIR	WEST ORANGE	GLEN RIDGE	
I	16*	2	5	23
II	50	4	21	75
III	34	8	23	65
IV	162	28	96	286
V	104	33	161	298
			TOTAL:	747

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* Includes four properties partially excavated as part of the NJDEP pilot excavation program.

USEPA CONTRACT NUMBER: 68-W8-0124
USEPA WORK ASSIGNMENT NUMBERS: 005-2LA9/006-2LB1

FINAL RESPONSIVENESS SUMMARY FOR THE MONTCLAIR/WEST ORANGE AND GLEN RIDGE RADIUM SITES ESSEX COUNTY, NEW JERSEY

JUNE 1989

NOTICE

The preparation of this document has been funded by the United States Environmental Protection Agency (USEPA) under the ARCS Region II Contract Number 68-W8-0124 to ICF Technology Incorporated (ICF).

The purpose of this Responsiveness Summary is to provide the public with a summary of citizen comments and concerns about the Montclair/West Orange and Glen Ridge Radium sites in Essex County, New Jersey, and the U.S. Environmental Protection Agency's (EPA) responses to those concerns. This responsiveness summary addresses comments received during the public comment period on the Supplemental Feasibility Study (FS) report and Proposed Plan which were released in April 1989.

EPA first released a remedial investigation and feasibility study (RI/FS) report for the sites in the fall of 1985, followed by a public comment period which extended from September 18, 1985 to November 27, 1985. During a public meeting to discuss the RI/FS held in November 1985, the Agency indicated that excavation of the radium-contaminated material was the preferred solution for the Montclair/West Orange and Glen Ridge Radium sites. However, based on the State of New Jersey's experience since the 1985, locating and assuring the continuing availability of a disposal facility can pose major obstacles to implementing any excavation remedy. For this reason, EPA has developed and evaluated additional alternatives to address the problem while at the same time maintaining temporary measures to lower exposures in the affected homes.

A summary of the comments received during the April 4 through June 9, 1989 public comment period is provided in this responsiveness summary. Additional community concerns about EPA's remediation efforts at the Montclair/West Orange and Glen Ridge Radium sites are summarized in the "Final Summary of Citizens' Concern About the Remedial Investigation and Feasibility Study" and "Final Public Information Meeting Summaries for the Montclair/West Orange and Glen Ridge Radium Sites, Essex County, New Jersey". The report, "Final Summary of Citizens' Concern About the Remedial Investigation and Feasibility Study", is a summary of verbal and written comments received during the public comment period of September 18, 1985 to November 27, 1985. The report, "Final Public Information Meeting Summaries for the Montclair/West Orange and Glen Ridge Radium Sites, Essex County, New Jersey" is a summary of EPA's presentation, and comments received at special Town Council meetings convened by the Mayors of Montclair, West Orange, and Glen Ridge on April 3, 1989. These meetings were held to initiate community discussion on the Supplemental FS report and Proposed Plan for the Montclair/West Orange and Glen Ridge Radium sites. Both of these reports are available for review at the information repositories identified in Appendix A.

All comments and concerns summarized in this document, along with those summarized in the "Final Summary of Citizens' Concern About the Remedial Investigation and Feasibility Study" and in the "Final Public Information Meeting Summaries for the Montclair/West Orange and Glen Ridge Radium Sites, Essex County, New Jersey", have been considered by EPA in making a decision regarding the selection of an alternative for remedial action at the Montclair/West Orange and Glen Ridge Radium sites. Additionally, EPA plans to initiate a supplemental groundwater investigation for the Montclair/West Orange and Glen Ridge Radium sites after the Record of Decision (ROD) has been signed.

This responsiveness summary for the Montclair/West Orange and Glen Ridge Radium sites is divided into the following sections:

I. **Responsiveness Summary Overview.** This section briefly outlines the remedial alternatives that were evaluated as part of the Supplemental Feasibility Study (FS), and summarized in EPA's Proposed Plan.

II. **Background on Community Involvement and Concerns.** This section provides a brief history of community interest in the Montclair/West Orange and Glen Ridge Radium sites. In addition, this section describes community relations activities conducted at the sites.

III. **Summary of Major Questions and Comments.** This section summarizes major questions and comments made verbally and in writing to EPA during the 1989 public comment period on the Supplemental FS and the Proposed Plan and provides EPA responses to these comments.

IV. **Remaining Concerns.** This section discusses community concerns that remain to be addressed once the ROD is signed. These concerns focus on the details of how the selected remedial alternative will be implemented.

Appendix A	Location of the information repositories for the Montclair/ West Orange and Glen Ridge Radium sites.
Appendix B	"Final Public Information Meeting Summaries for the Montclair/ West Orange and Glen Ridge Radium Sites, Essex County, New Jersey".
Appendix C	Public Meeting Agenda and sign-in sheets from the public meeting held by EPA on May 18, 1989 to discuss the Supplemental FS and EPA's Proposed Plan for remedial action.
Appendix D	Selected Newspaper notices announcing dates of the public comment period, extensions granted and location and time of the public meeting.

I. Responsiveness Summary Overview.

The Montclair/West Orange and Glen Ridge Radium sites are located in Essex County, New Jersey. The soil at the sites is contaminated to varying degrees with radioactive waste materials suspected to have originated from nearby radium processing or utilization facilities in the early 1900s. The material, which is similar to uranium mill tailings, was disposed of in then-rural areas of the communities. Some of the radium-contaminated material is also believed to have been moved from the original disposal locations and used as fill material in low-lying areas. Houses were constructed on or near the radium waste disposal areas (also referred to as "core areas"). In a few instances, it appears that some of the material was mixed with Portland cement to make concrete for sidewalks and foundations. As a result, the public is being exposed to elevated indoor concentrations of radon and radon decay products, as well as excessive levels of indoor and outdoor gamma radiation.

The remedial alternatives evaluated as part of the Supplemental FS are outlined below.

Alternative 1: No Additional Action
Alternative 2: Continue Existing Action
Alternative 3: Engineering Controls
Alternative 4: The Park(s) Alternative
Alternative 5: Total Excavation, With Off-Site Disposal
Alternative 6: Partial Excavation, With Off-Site Disposal
Alternative 7: The Combined Approach

EPA had identified Alternative 7, The Combined Approach, as the Agency's preferred alternative in the Proposed Plan. Under Alternative 7, the actions to be implemented on a particular property would depend on the nature and extent of contamination at that property. These actions would include: total excavation of the most extensively contaminated properties and limited excavation at others; engineering controls to reduce exposure to radon, radon decay products, gamma radiation, and radium-contaminated soil; and institutional controls to ensure the effectiveness of the engineering controls. All actions would be designed to ensure protection of public health. Alternative 7 was developed to offer a comprehensive and fully implementable remedy to address public health risks at the sites. This alternative would take approximately 3 years to implement.

EPA's selected remedy is a slight modification of Alternative 7. The remedy will address the most highly contaminated properties by fully excavating the radium-contaminated soil. In addition, at many of the properties, EPA intends to undertake limited excavation of near surface contamination, but only at properties where such an action would provide a final remedy. This differs from the proposed plan, where the partial excavation would have

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left contaminated material, at depth, at a number of properties. This modification obviates the necessity for institutional controls at many of the properties at the remedy implemented will be final and permanent. A decision on those properties where no soil will be excavated will be deferred pending additional dialogue with local officials and affected residents, and will be included in subsequent Records of Decision.

A summary of the site background, alternatives evaluated and a comparison of alternatives are presented in the Proposed Plan and more fully described in the Supplemental FS report. The Supplemental FS report is available for public review at the information repositories identified in Appendix A.

II. Background on Community Involvement and Concerns.

This section provides a brief history of community participation in the Montclair/West Orange and Glen Ridge Radium sites during remedial planning activities conducted to date.

A history of community involvement from the initial discovery of the sites in 1979 through October 1986 is documented in the report "Final Summary of Citizens' Concern About the Remedial Investigation and Feasibility Study". This report also includes a summary of concerns expressed during the public comment period of September 18, to November 27, 1985 for the RI/FS.

EPA has also continued to inform the public concerning developments and progress on the Montclair/West Orange and Glen Ridge sites. In November 1986, EPA issued an update informing the affected residents of additional sampling and testing that was to be performed. In addition, EPA held availability sessions from December 8 to 11, 1986 to allow residents to discuss property-specific radon gas and gamma radiation test results. In March 1987, EPA issued another update along with the latest health assessment which reconfirmed the Agency for Toxic Substances and Disease Registry's (ATSDR's) and Centers for Disease Control's (CDC's) earlier findings for the sites. Public availability sessions were also held from March 30, 1987 to April 1, 1987 to provide residents an opportunity to discuss the health assessment. Another update, discussing progress on the supplemental feasibility study, was mailed to affected residents and concerned individuals later in 1987.

Community relations activities conducted subsequent to the release of the Supplemental FS report are summarized in the remainder of this section. On April 3, 1989, EPA attended special Town Council meetings that were convened by the mayors of the communities of Montclair, West Orange and Glen Ridge to discuss the findings of the Supplemental Feasibility Study. The issues identified at the three Town Council meetings are summarized in the "Final Public Information Meeting Summaries for the Montclair/West Orange and Glen Ridge Radium Sites, Essex County, New Jersey", which is attached as Appendix B.

On April 4, 1989, EPA mailed the affected residents a copy of the Proposed Plan, along with a stamped, addressed postcard to allow interested residents to request a copy of Volume 1 of the draft Supplemental FS report. Public availability sessions were conducted on April 5 to 7, 1989 from 2:00 p.m. until 7:00 p.m., and on April 8 from 10:00 a.m. to 3:00 p.m., at EPA's office trailers on Oak Street, adjacent to Nishuane Park in Montclair. These sessions were held to discuss the Supplemental FS and the Proposed Plan. Over 100 affected residents, interested citizens, local officials and news reporters attended the public availability sessions.

EPA held a public meeting on May 18, 1989 to discuss the Supplemental Feasibility Study and receive formal public comment. EPA Region II representatives included: William Muszynski, Acting Regional Administrator; John Frisco, Associate Director for Remedial Programs; Robert McKnight, Chief, Northern New Jersey Remedial Action Section; and Raimo Liias, Remedial Project Manager. William Nelson represented ATSDR. Other EPA and New Jersey Department of Environmental Protection (NJDEP) staff and EPA's contractor also attended.

An agenda for the public meeting, and a sign-in sheet of those who attended the meeting are attached as Appendix C. Approximately 50 affected residents, interested citizens, local officials and news reporters attended the public meeting. On May 19 (from 2:00 p.m. until 7:00 p.m.) and on May 20 (from 10:00 a.m. to 3:00 p.m.), additional public availability sessions were held at EPA's office trailers on Oak Street in Montclair.

III. Summary of Major Questions and Concerns Raised during the Public Comment Period and EPA's Response to Comments.

This section addresses the public comment period held from April 4, 1989 through June 9, 1989. A preference for Alternative 5, Total Excavation, With Off-Site Disposal, has been expressed consistently by the local officials, community groups, and individual citizens who have commented on EPA's activities since the initial RI/FS report was released in 1985. Written and verbal comments received during the public comment period on the Supplemental FS report and Proposed Plan reiterate this preference. The number of citizens actively participating in the decision making process for the sites, and the tone of the comments received have changed significantly between November 1985 and the present.

In 1985, during the comment period on the RI/FS, over 1500 citizens participated in the public comment process. At that time, the entire community was adamant that EPA totally remove

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all contaminated materials from the communities. Public involvement during the recent comment period on the Supplemental FS was significantly less dramatic, with approximately 150 citizens participating. More importantly, the tone and type of comments received have changed significantly. While the communities' clearly prefer full excavation and off-site removal of all contaminated materials, discussions with affected residents, especially during the one-on-one public availability sessions, illustrated the communities' awareness and empathy for the difficulties encountered in securing a disposal site for the excavated, contaminated material.

A summary of verbal and written comments received during the public comment period are categorized in the nine topical areas listed below:

- Health Related Concerns
- Institutional Controls
- Engineering Controls
- Technical Issues
- Project Schedule
- Proposed Alternative
- Other Alternatives Evaluated
- Cost
- Miscellaneous Concerns

Health Related Concerns

COMMENT: Residents expressed concern that EPA's Proposed Plan addressed only the environmental impacts of the contamination. They requested that EPA ask the Centers for Disease Control to conduct a longitudinal health study of residents living within the study area.

EPA RESPONSE: The New Jersey Department of Health would be responsible for conducting any health studies of this type at the sites. EPA will inform the New Jersey Department of Health and ATSDR that some residents have requested this type of study.

COMMENT: Several residents expressed concern that Alternative 7, The Combined Approach, was not as protective of public health as Alternative 5, Total Excavation, With Off-Site Disposal.

EPA RESPONSE: Alternative 7, The Combined Approach, does provide for the protection of public health at all properties within the study areas.

COMMENT: The Montclair Environment Advisory Committee asked why maximum exposure situations were not included in Table 4-2, "Above-Background Risks Remaining After Remediation", of the Supplemental FS report.

EPA RESPONSE: Exposure is based on the sum of the proportions of potential exposures received through the various routes. Not all the residents would be exposed to the maximum exposures received at the most contaminated properties. Shown on the table, the risks presented are averaged over the twelve properties specifically selected to encompass the range of exposure scenarios. Hence, the maximum exposure ranges would not be appropriate.

COMMENT: Local officials, the Montclair Environment Advisory, and several residents asked what safeguards were incorporated into Alternative 7, The Combined Approach, to prevent exposure to contaminated material during excavation.

EPA RESPONSE: During excavation, monitoring, erosion control and dust suppression measures would be implemented. Additionally, EPA intends to have all disposal and transportation details in place prior to the initiation of any excavation.

Institutional Controls

COMMENT: Local officials and the Montclair Environment Advisory Committee asked how, under the Proposed Plan, EPA would ensure the health and safety of town employees or outside contractors, when they are conducting normal repair and maintenance of streets and utilities in contaminated areas.

EPA RESPONSE: EPA will assist the affected communities in developing proper protocols for monitoring and handling materials excavated during maintenance operations beneath public properties and streets. EPA could provide monitoring assistance during excavation of radium-contaminated areas, and could provide assistance with disposing of material removed during these operations.

COMMENT: Local officials, citizen groups, and many interested individuals asked for details on how the institutional controls proposed as part of Alternative 7, The Combined Approach, would be enforced at properties where there is residual contaminated material.

EPA RESPONSE: EPA has deferred the decision on partial excavation of any properties, so that institutional controls for those properties will be addressed in subsequent Records of Decision. No details have yet been established on how the institutional controls would be implemented or enforced. EPA will seek the input and support of local officials and other interested community members during the additional comment period to ensure that appropriate and effective institutional controls are implemented.

Engineering Controls

COMMENT: The Montclair Environment Advisory Committee asked about the procedures EPA would use to obtain clean soil for backfilling the excavated areas.

EPA RESPONSE: After the ROD is signed, during the design phase, EPA will seek competitive bids for replacement soil to be used as backfill for the excavated areas. All soil used for backfill will meet required standards prior to application at any property.

COMMENT: Many interested parties asked about EPA's schedule for reviewing the interim measures that are proposed to be implemented as part of Alternative 7, The Combined Approach. Many also asked about EPA's future plans for monitoring at the sites.

EPA RESPONSE: EPA intends to continue its efforts to find a permanent solution for those properties where interim measures are implemented, as soon as the ROD is signed. EPA will also continue to monitor all of the affected properties throughout the design and implementation of the remedial action. A review will be conducted within five years after commencement of the remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

COMMENT: Several interested parties questioned the track record of the engineering controls, i.e., sub-slab ventilation systems proposed in Alternative 7, The Combined Approach. They also expressed concern about the potential for erosion of the clean soil cover that is proposed for some of the Category II and III properties. They also expressed concern about the potential for children and gardeners to ingest contaminated material under this alternative.

EPA RESPONSE: EPA is confident that sub-slab ventilation systems are effective, and that it is the appropriate radon reduction technique to employ. Additionally, slopes in and around the study area are not sufficiently steep such that erosion should be a problem. EPA has deferred the decision on partial excavation of any properties. At properties with identified gamma anomalies, where no excavation occurs, there will be the potential for children and gardeners to ingest contaminated material. However, with an appropriate soil cover as envisioned as part of the shielding program under Alternative 7, The Combined Approach, there should be no exposure to gamma radiation above the health guidelines. With the soil shielding and the woven nylon indicator fabric, that was proposed to be buried at depth at category "II" and "III" homes, there would be no residual contaminated material at the surface. Hence, there would be little or no ingestion of contaminated soil by children or gardeners. Neither should there be any significant uptake of radium in vegetables grown on remediated properties.

COMMENT: The Montclair Environment Advisory Committee asked what safety measures would be implemented in case of system malfunction of the engineering controls.

EPA RESPONSE: The new radon reduction systems that are proposed as part of the engineering controls include indicator or safety switches which warn of system malfunctions. Indicator lights are lit when the system is operating, and go off when there is a problem. This provides for a positive identification of operational problems.

Technical Issues

COMMENT: The Montclair Environment Advisory Committee wanted to know if data gaps about the contamination present at specific properties could effect the implementation of EPA's Proposed Plan.

EPA RESPONSE: The data collected to date is sufficient to select a remedial plan for the sites. Additional data will be collected during the design activities that will further refine the specific remedial activities to be conducted at some of the properties.

COMMENT: The Montclair Environment Advisory Committee inquired whether the amount and location of all of the waste, i.e., source material, from the U.S. Radium site had been identified. Additionally, they were interested to know whether EPA was actively pursuing potentially responsible parties.

EPA RESPONSE: Estimates of the U.S. Radium plant's waste production have been made, however, the source(s) of the material disposed of at the Montclair/West Orange and Glen Ridge sites has not been conclusively determined. EPA is still attempting to discover evidence that will substantiate the allegations regarding the source(s) of the radium-contaminated materials discovered at the sites.

Project Schedule

COMMENT: Many of those who commented, inquired into EPA's proposed timetable for implementing the Proposed Plan. Local officials, citizen groups and individual citizens encouraged EPA to begin remediating properties in 1989 instead of 1990 as identified in the Proposed Plan, especially the four NJDEP pilot program properties.

EPA RESPONSE: EPA is exploring all available mechanisms to provide relief for the four families that have been displaced because of the NJDEP pilot program. Unfortunately, it is not likely that these four properties can be remediated before the end of this calendar year because of the length of time required to secure contractors to design and implement the selected remedy. Additional time will be required to complete the coordination for the transportation and disposal of the soil that will be removed from the four properties.

COMMENT: Several interested citizens asked how long EPA expected it would take to complete the implementation of Alternative 7, The Combined Approach.

EPA RESPONSE: EPA estimates that the length of time to complete the implementation of the selected remedy would be about 3 years from the signing of the ROD.

COMMENT: Several interested parties asked when the regulatory and transportation details for implementing, Alternative 7, The Combined Approach, would be developed. Additionally, these parties expressed interest in EPA's proposed process for obtaining clean soil to be used to replace the excavated contaminated soil.

EPA RESPONSE: Arrangements for disposal and transportation of the soil will be developed during the design phase and will be established prior to the initiation of excavation. The source of all replacement soil will be determined by competitive bid, and will meet required standards prior to purchase and application at any property.

Proposed Plan

COMMENT: Local officials from Montclair and Glen Ridge, the Montclair Environment Advisory Committee and many individual citizens commented that Alternative 5, Total Excavation, With Off-Site Disposal, should be selected instead of EPA's Proposed Plan (Alternative 7, The Combined Approach).

EPA RESPONSE: Based on the past experience of the NJDEP in securing and maintaining the availability of a disposal site, coupled with the desire to minimize the disruption to the community, EPA is selecting a more limited remedial option than complete excavation of the estimated 323,000 cubic yards of contaminated material. EPA intends to fully excavate approximately 23 properties, with off-site transport and disposal of more than 42,000 cubic yards. In addition, EPA intends to undertake full excavation at several more properties, where near-surface excavation would provide for a final remediation of the property. This would account for approximately 4,000 additional cubic yards.

COMMENT: The Montclair Environment Advisory Committee asked why the depth of soil to be excavated at category "II" properties was determined to be two feet.

EPA RESPONSE: Excavation of two feet of contaminated material is estimated to allow for the placement of sufficient clean soil to provide effective shielding against gamma radiation.

COMMENT: Several residents asked what safeguards or guarantees EPA could provide with respect to ensuring the ongoing availability of a disposal site.

EPA RESPONSE: EPA cannot guarantee that problems similar to those which occurred under the NJDEP pilot program in maintaining the availability of a disposal facility will not reoccur under EPA's Proposed Plan. However, EPA has proposed a plan to minimize the impacts of such an occurrence. EPA does not intend to store any of the contaminated soil that is excavated at any New Jersey facility. EPA intends to continuously remove the contaminated soil for transport to a disposal site. EPA plans to use a continuous shipping process, which may require a loading facility to be available. The loading facility is an issue that EPA intends to address in the design phase prior to the initiation of any excavation. Additionally, if either the transportation or disposal components of EPA's remedy are interrupted, EPA intends to stop all excavation, replace the contaminated material, install engineering controls to the maximum extent practical and return the affected resident(s) to their home(s).

COMMENT: Local officials, citizen groups and individual citizens wanted to know if EPA intends to remove contaminated material from beneath public properties and streets as part of their Proposed Plan. Many who commented encouraged EPA to include public properties and streets in their ROD.

EPA RESPONSE: EPA did not include excavation of soil from beneath public properties and streets as part of the Proposed Plan. Instead, institutional controls would have been imposed to ensure the protection of workers who might come into contact with contaminated soil during repair or maintenance activities. Based on the comments received on this issue, EPA has decided to defer a decision on public properties and streets to give local officials and area residents an opportunity to provide additional input on appropriate remedial measures for these properties.

COMMENT: Local officials, the Montclair Environment Advisory Committee and several residents asked if any Township or Boro properties were within category I, II, III or IV.

EPA RESPONSE: Several Town or Boro properties, including some public streets and sidewalks, may be classified as any one of the categories. Confirmational testing during the design activities could revise the classification of some properties.

COMMENT: Several interested parties asked whether NJDEP supported EPA's Proposed Plan.

EPA RESPONSE: NJDEP fully supports EPA's Proposed Plan and selected remedy.

COMMENT: A member of Montclair Environment Advisory Committee asked if EPA's Proposed Plan for remediation of the Montclair/West Orange and Glen Ridge Radium sites was linked in any way to New Jersey's Low Level Waste Compact.

EPA RESPONSE: The Low level Waste Compact specifically deals with the disposal of low level radioactive materials that are regulated by the Nuclear Regulatory Commission (NRC). The contaminated material discovered at the Montclair/West Orange and Glen Ridge sites is considered diffuse naturally occurring radioactive material (NORM), and, therefore, not regulated by the NRC. EPA is certain that there is no connection with the New Jersey Low Level Waste Compact siting process.

Other Alternatives Evaluated

COMMENT: A resident of Glen Ridge inquired as to the feasibility of selecting Alternative 4, The Parks Alternative, in Glen Ridge and another alternative such as Alternative 7, The Combined Approach, or Alternative 5, Total Excavation, With Off-Site Disposal, in Montclair.

EPA RESPONSE: EPA could make different decisions for the Montclair/West Orange and Glen Ridge Radium sites. EPA has studied the impact of the relocation and disruption that the implementation of Alternative 4, The Parks Alternative, might entail. Because of the potential social and economic impacts of this option, EPA has not recommended selection of this alternative for either site. The consensus of public and local official opinion opposes any on-site disposal option.

COMMENT: Several interested parties questioned how Alternative 4, The Parks Alternative, could be considered environmentally protective since residual contaminated material would be left permanently on-site under this alternative.

EPA RESPONSE: It is impossible to destroy radioactivity. Therefore, containment and/or isolation are two options that could protect the environment from the migration of contamination from the parks. Alternative 4, The Parks Alternative, contains provisions for a protective cap that would prevent the migration of contamination. Thus, this alternative is both technically sound and feasible. However, as mentioned above, EPA is not recommending this alternative be selected because of the social and economic impacts that such an option could entail.

Cost

COMMENT: Several interested parties asked who was responsible for the cost of monitoring, operating, and maintaining engineering and institutional controls that are proposed as part of any alternative.

EPA RESPONSE: EPA or the State of New Jersey would provide for the cost of monitoring, operating, and maintaining engineering and institutional controls that would be required as part of any alternative.

COMMENT: Several interested citizens asked how much EPA's Proposed Plan (Alternative 7, The Combined Approach) is estimated to cost.

EPA RESPONSE: The estimated cost of the Proposed Plan, Alternative 7, The Combined Approach, is $53 million.

Miscellaneous Concerns

COMMENT: The Montclair Environment Advisory Committee was interested to know how many residents had participated in the public availability sessions conducted by EPA on April 5 to 8, 1989.

EPA RESPONSE: Sixty-nine study area residents visited the trailers in April. Another 20 interested citizens also visited. Phone contact was made with an additional 50 study area residents. All residents of category I properties were either contacted and/or visited and given an opportunity to meet with EPA on an individual basis.

COMMENT: The Montclair Environment Advisory Committee asked how realtors could obtain information about which category individual properties fall into within the study area.

EPA RESPONSE: Realtors should be able to get category information from each individual homeowner. EPA's practice is not to release information about individual properties to anyone except the property owner without the property owner's permission.

IV. Remaining Concerns.

The remaining community concerns focus on two primary areas. First, virtually all persons who commented on EPA's Proposed Plan expressed concern about the details of implementation of the selected remedial alternative. Extensive coordination with residents and local officials will be required to successfully implement the selected remedial alternative. Numerous details on how institutional controls and temporary relocation efforts will be implemented, will be addressed in the comment period which has been extended to provide for additional dialogue between concerned citizens, local officials and the EPA. Given the problems which occurred during NJDEP's pilot program, residents remain skeptical of EPA's ability to successfully remediate the sites.

Second, interested citizens attending the May 18, 1989 public meeting in Montclair, inquired about the schedule for EPA's planned groundwater investigation and its potential effect on EPA's Proposed Plan for remedial action. EPA explained that it plans to proceed with the groundwater investigation following the signing of the ROD. Further, EPA explained that, at this time, it does not expect the results of the additional groundwater investigations to affect the plan for remediation of the sites. Concern about the potential for groundwater contamination and its potential effect on the community is expected to continue until the groundwater investigations are complete and the results evaluated.

APPENDIX A

List of Repositories

United States Environmental Protection Agency, Region II
Room 711
26 Federal Plaza
New York, New York 10278

New Jersey Department of Environmental Protection
401 East State Street
Trenton, New Jersey 08625

Office of the Mayor and the Montclair Task Force
Montclair Municipal Building
205 Claremont Avenue
Montclair, New Jersey 07042

Montclair Public Library
50 South Fullerton Avenue
Montclair, New Jersey 07042

Office of the Mayor
Municipal Building
825 Bloomfield Avenue
Glen Ridge, New Jersey 07028

Office of the Mayor and the West Orange Task Force
Municipal Building
66 Main Street
West Orange, New Jersey 07052

Glen Ridge Public Library
Bloomfield Avenue
Glen Ridge, New Jersey 07028

APPENDIX B

FINAL PUBLIC INFORMATION MEETING SUMMARIES
FOR THE
MONTCLAIR/WEST ORANGE AND GLEN RIDGE RADIUM SITES
ESSEX COUNTY, NEW JERSEY

Work Assignment Nos. 037-2LB1/038-2LA9

Document Nos. 135-CR1-MTHDNZ
136-CR1-MTHDPA

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DEFENSE AUTHORIZERS, APPROPRIATORS APPEAR HEADED FOR CLASH OVER ASMS FUNDI

The Armed Services Committees in both the House and the Senate appear headed for a clash with their appropriations counterparts on Capitol Hill over funding for the Advanced Strategic Missile System (ASMS). Both Armed Services panels boosted funding for the ASMS, an advanced development program that may lead to a next generation Intercontinental Ballistic Missile Research (ICBM) system, saying it is essential to counter Soviet advances in strategic defenses. However, the House Appropriations defense subcommittee last week cut funding for the program by $14-million. The Senate Appropriations defense subcommittee is expected to take up the Defense Dept. spending bill in early September. If the Senate appropriators decide to trim ASMS funding, the committees will be split over funding levels for what is considered by DOD to be a vital research program.

ASMS is the only Air Force program conducting advanced development of ICBM subsystems, according to the Air Force. In addition, the Air Force states, ASMS is continuing to work on advanced development of reentry systems, penetration aids, and strategic missile technologies. The main thrust of ASMS research and development focuses on ICBM effectiveness against existing threats while at the same time exploring advanced missile systems needed to meet evolving threats and technologies.

In FY-88, the Senate Appropriations Committee approved the $134-million the Reagan Administration had requested. In FY-89, the committee appropriated $143.8-million for ASMS, $8-million less than the $151.8-million sought by the Administration.

The House Armed Services Committee has authorized $141.35 million in FY-90 for ASMS -- $42-million more than the Bush Administration's $99.35-million request. The Senate Armed Services Committee added $20-million to the Bush ASMS request in FY-90, and also recommended adding $30-million to the $99.27-million included in the Bush FY-91 budget for the research program.

According to the Senate Armed Services Committee DOD authorization report language: "The Advanced Strategic Missile System technology program provides the basis for improvements to our existing ballistic missile system as well as for the development of the next generation of missiles. The program has received ever declining funding in recent years despite concerns about future Soviet strategic defenses, deeply buried targets, relocatable targets, and the pre-launch survivability of our missile forces . . . For these reasons, the committee recommends adding $20-million to the request for ASMS in fiscal year 1990 and $30-million in fiscal year 1991."

Similar to the Senate, the House expressed concerns over the "erosion of the ASMS budget over the past several years. "The role of ICBMs in defense penetration is critical as the Soviets continue to maintain and upgrade their ballistic missile defense capability . . . The advanced strategic missile system is the single Department of Defense program for advanced development of reentry, penetration, and strategic missile technologies . . . The committee therefore recommends additional authorization of $42-million" in FY-90.

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MONTCLAIR TOWN COUNCIL MEETING
FOR THE
MONTCLAIR/WEST ORANGE AND GLEN RIDGE RADIUM SITES
ESSEX COUNTY, NEW JERSEY

PUBLIC INFORMATION MEETING SUMMARY
MONTCLAIR/WEST ORANGE AND GLEN RIDGE RADIUM SITES
TOWNSHIP OF MONTCLAIR, ESSEX COUNTY, NEW JERSEY
MONTCLAIR TOWN COUNCIL MEETING

On April 3, 1989 at 7:00 p.m., the U.S. Environmental Protection Agency (EPA) attended a special Montclair Town Council meeting at the invitation of Mayor Clifford Lindholm. The meeting was held to discuss the Montclair/West Orange and Glen Ridge Radium sites located in Essex County, New Jersey. EPA's purpose in attending the meeting was to inform local officials and residents that EPA had completed the draft Supplemental Feasibility Study (FS) for the Montclair/West Orange and Glen Ridge Radium sites and to explain EPA's Proposed Plan for remediation of the sites. The presentation included a brief review of the draft Supplemental FS prepared for the sites and an introduction to the Proposed Plan. In addition, EPA responded to questions from interested local officials and citizens. Attached to this meeting summary as Appendix A, is a fact sheet that was distributed at the meeting. Approximately 40 people attended the public meeting.

EPA Region II representatives included: William Muszynski, Acting Regional Administrator; John Frisco, Associate Director, Emergency and Remedial Response Division; and Lillian Johnson, Community Relations Section Chief, Office of External Programs. EPA contractor personnel included Colleen Ranney, REM II Site Manager, and Sheila Conway, REM II Community Relations Specialist.

The public meeting began with Montclair Mayor Clifford Lindholm's introduction of Mr. Muszynski, Acting Regional Administrator, EPA Region II. Mr. Muszynski explained that EPA has been struggling with the difficult problem of disposal of the contaminated soil since the initial Montclair/West Orange and Glen Ridge Remedial Investigation and Feasibility Study (RI/FS) draft report was released in 1985. He went on to explain that additional sampling and evaluation of remedial alternatives has been conducted and EPA is now asking the public to comment on the Proposed Plan.

Mr. Muszynski invited local officials, affected residents, and interested citizens to actively participate in the decision making process for the sites. To encourage public participation, in the decision making process, he noted that copies of the Proposed Plan and draft Supplemental FS report were being placed in the library and Town Hall for public review. Additionally, he stated that EPA would be mailing the Proposed Plan to all affected residents on or about April 5, 1989. Included in the mailing would be a stamped, addressed postcard that would allow interested residents to request Volume 1 of the draft Supplemental FS report.

Mr. Muszynski then outlined the public participation process for this phase of the project, noting that a public comment period on the Proposed Plan would be held from April 4 to June 2, 1989. He also explained that, in addition to the Town Council meeting, EPA staff will be available to meet with residents on an individual basis on April 5-7, 1989 from 2:00 p.m. until 7:00 p.m., and on Saturday April 8 from 10:00 a.m. to 3:00 p.m. at EPA's office trailers on Oak Street, adjacent to Nishuane Park in Montclair. He further explained that a public meeting and additional public availability sessions would be held in mid-May.

Fact sheets were then distributed to all in attendance which provided a summary of the Proposed Plan. Following his overview, Mr. Muszynski introduced John Frisco, Associate Director of the Emergency and Remedial Response Division.

Mr. Frisco presented the history of the Montclair/West Orange and Glen Ridge sites and explained that EPA's preferred remedial alternative -- to excavate all radium-contaminated soil and transport it to an off-site disposal facility -- was recommended following the initial RI/FS in 1985. He explained that the New Jersey Department of Environmental Protection (NJDEP) had initiated a pilot program at twelve properties in Montclair and Glen Ridge to study the feasibility of excavating and disposing of radium-contaminated soil.

Mr. Frisco then explained that, after successful remediation at four properties in Glen Ridge, and in the middle of excavation of four Montclair properties, New Jersey's disposal permit was revoked and the State was left without a disposal facility. Consequently, NJDEP left drums of containerized soil at a loading and transfer facility in Kearny, New Jersey and in the yards of the four Montclair pilot program properties.

The pilot program demonstrated that excavation, removal, and disposal of radium-contaminated soil was technically feasible. Although, securing a disposal facility and the transportation components of the overall remedial action program remain uncertain factors.

Mr. Frisco further explained that EPA has tried to examine several feasible alternatives to reduce the volume of soil requiring excavation while trying to secure a disposal facility. He then presented the Proposed Plan, which consists of two parts: (1) excavation of radium-contaminated soils in the most highly contaminated properties, followed by transport of the soils to an off-site disposal facility; and (2) interim actions that will be implemented at less contaminated properties, to include partial or "hot spot" excavation, engineering controls (e.g., radon control systems and gamma radiation shielding) and institutional controls.

Mr. Frisco then reviewed the criteria for the five categories and the number of properties within each category in Montclair, as described below.

Category "I" Properties - Includes 16 core area properties, all of which have extensive radium contamination throughout the property, including under and around the house foundation; elevated levels of gamma radiation; and concentrations of radon or radon decay products in excess of health guidelines.

Category "II" Properties - Includes 50 properties with basement wall or outdoor gamma radiation levels equal to or greater than 50 micro-Roentgens per hour and with extensive radium contamination.

Category "III" Properties - Includes 34 properties with radon, radon decay product or gamma radiation levels above health guidelines and with limited, or "hot spot", radium contamination.

Category "IV" Properties - Includes 162 properties with soil contamination above cleanup standards, but with no radon, radon decay product or gamma radiation levels above health guidelines.

Category "V" Properties - Includes 104 properties which have no detectable radium-contaminated soil present in excess of the soil cleanup standards.

Mr. Frisco ended his presentation with a review of the decision making process, emphasizing the opportunities for public involvement throughout this process. Following the above presentation by EPA, Mr. Muszynski opened the meeting to comments and questions from the public. These comments focused on the following topics:

- Project Schedule;
- Technical Issues;
- PRP Concerns; and
- Administrative Issues.

A summary of comments by topic and EPA responses to these comments is presented below.

1. Project Schedule

COMMENT: A resident inquired about the four families from the NJDEP pilot project who have been out of their homes for three years, and asked to know when they would be back in their homes.

EPA RESPONSE: At this time, EPA does not have a timeline as to when these families will be back in their homes. However, EPA will work with these residents as part of the Category I properties, as expeditiously as possible. The Superfund law requires that before EPA can complete the remediation that NJDEP began at these properties, it must complete the public comment and decision making process. EPA will then have to solicit competitive bids from contractors to perform the remedial work. Regretfully, this entire process could and probably will take many months, perhaps a year. EPA is aware of the disruption that this has caused these families and will try to resolve this situation as expeditiously as it can. Furthermore, EPA has designed the proposed excavation so that this type of situation will not recur. During excavation at Category I properties under EPA's Proposed Plan, 1) if a family were temporarily relocated and the property was partially excavated, and 2) the disposal facility became unavailable for some reason, EPA would place the contaminated soil back into the ground and promptly move the family back into the house until another solution could be found. EPA recognizes and shares the communities' concern about this issue. The Agency wants to work with each of the affected families to design a remediation plan for their property which is the least disruptive and which ensures that all health guidelines are met.

COMMENT: A resident expressed concern over how long the interim measures would be required.

EPA RESPONSE: EPA will continue to explore remedial technologies to permanently address the residual contamination. Some of the technologies that could reduce the volume of contaminated soil are currently in developmental stages. However, interim measures would remain in place until a permanent solution could be identified. EPA is required to re-evaluate interim measures within five years, and is committed to continuing the search to find a permanent solution for those properties where interim measures are proposed.

COMMENT: The mayor asked if EPA would review the time schedule for making a final decision on the Proposed Plan.

EPA RESPONSE: About midway into the public comment period (which begins April 4, 1989) a public meeting will be held to receive questions and comments. This schedule will allow time for the residents to become familiar with the Proposed Plan and the draft Supplemental FS. In addition, it will allow residents to meet individually with EPA representatives if they so choose, and formulate their concerns and questions for the public meeting. Comments are welcomed both at the public meeting and in writing throughout the public comment period. At the end of the public comment period, the comments and EPA's responses will be summarized into what is known as a Responsiveness Summary (RS). The EPA Region II Regional Administrator will review and consider the public comments contained in the RS in making the final decision. The final decision is documented in a document known as the Record of Decision (ROD). The ROD is generally signed within 30 days after the close of the public comment period. The contract process for the design and implementation of the selected remedial alternative cannot begin until after the ROD is signed. The contract process normally begins immediately after the ROD is signed. On April 5, 6, 7, and 8, EPA will conduct public availability sessions at EPA's office trailers on Oak Street adjacent to Nishuane Park in Montclair, to listen to residents concerns and answer questions.

2. Technical Issues

COMMENT: A resident asked if there were any data gaps in determining the extent of the radium contamination.

EPA RESPONSE: EPA is fairly confident that the RI accurately established the outline of the contaminated area. Nonetheless, EPA plans to conduct additional monitoring during the design and remedial action phase to confirm the extent of radium contamination.

COMMENT: A resident inquired about interim engineering controls and institutional controls, asking who will install, monitor, inspect and pay for them.

EPA RESPONSE: EPA is responsible for the integrity of the interim engineering controls, which includes inspection and monitoring. As for the institutional controls, EPA would look to the community and township to help implement such controls.

COMMENT: The mayor asked which properties would be considered permanently clean.

EPA RESPONSE: The properties considered permanently clean correspond to those in Categories I, V, and part of IV; not those in Categories II and III.

COMMENT: A resident asked if the standards for all homes will be consistent as to the thickness of soil to control radon flux.

EPA RESPONSE: Up to two feet of soil will be removed and replaced with clean soil at homes in Category II. Although radon flux varies depending on contamination, EPA does not believe that this is a problem outside the house.

COMMENT: A resident asked about how the relocation of residents during the excavation of the Category I homes would be managed.

EPA RESPONSE: EPA recognizes that there are many complex issues and details to be resolved to successfully implement the Proposed Plan. EPA is committed to working with the town and the residents both individually and collectively, to ensure that the remediation process causes as little disruption as possible.

COMMENT: A council member expressed concern about how EPA intends to address storage and shipping of the contaminated soil that is excavated.

EPA RESPONSE: EPA does not intend to store the contaminated soil on the properties nor at any other New Jersey facility but to continuously remove the soil to a loading facility for rail transport to a disposal site. EPA hopes that, by using a continuous shipping process, a loading facility can be made available -- perhaps at Kearny, New Jersey. The absence of a loading facility is a problem that will need to be addressed during the design phase. EPA will not excavate additional soil until a loading facility is identified, and all arrangements for the disposal of the contaminated soil are in place.

COMMENT: A council member asked if a barrier will be used to identify where the clean fill ends and the contaminated soil begins at Category II and III properties.

EPA RESPONSE: A orange woven nylon barrier will be placed under two feet of clean fill to identify where the clean fill ends and where the remaining residual contamination begins.

COMMENT: A council member asked if EPA has experience at sites where similar remediation technologies have been successful.

EPA RESPONSE: Yes. For example, state-of-the-art engineering controls similar to what EPA is proposing for some of the properties have been successfully installed in homes with naturally occurring radon in Clinton, New Jersey. EPA will continue to monitor the properties where interim measures are proposed to ensure that the public health is protected.

COMMENT: A resident asked if EPA will purchase properties within Categories II, III, and IV for a fair market value.

EPA RESPONSE: At this time EPA has no plans to buy any of the properties. EPA intends to work with the residents individually, to design the least disruptive solution for remediating their property.

COMMENT: An attendee asked what EPA plans to do in terms of security during the excavation period when residents are out of their homes.

EPA RESPONSE: At other Superfund sites where security has been a concern, EPA's construction contractors normally retain security firms. EPA has set aside funds for site security as part of the remediation costs for this project.

COMMENT: A resident inquired about radon decay products affecting groundwater in Categories II, III, and IV.

EPA RESPONSE: A groundwater study will begin within the next 30 to 60 days to address this issue.

COMMENT: A resident asked how, for properties in Categories II and III, EPA knows when to stop excavating.

EPA RESPONSE: During the design for each property, the amount of soil that needs to be excavated, as well as, any engineering controls and institutional controls, will be determined. This determination will be documented in an agreement with the property owner prior to initiating remediation.

3. PRP Concerns

COMMENT: A resident asked if EPA is still pursuing Potentially Responsible Parties at this site.

EPA RESPONSE: Yes, to the degree that EPA can obtain sufficient information and documentation that can be used in a court of law. However, documenting and recreating events that occurred so long ago is very difficult.

4. Administrative Concerns

COMMENT: A resident asked if EPA will provide legal counsel to all residents.

EPA RESPONSE: EPA will examine if and how if it can provide this service under its current Superfund authority.

COMMENT: A resident understood that residents will have restricted properties in Montclair, and asked if property restrictions will apply to the various homes in each of the different categories.

EPA RESPONSE: Each property owner will get a letter from EPA indicating the category in which the property has been placed, or certifying that a particular property is clean. There are likely to be some restrictions on future activities on certain properties in Categories II, III and IV.

COMMENT: A resident asked if EPA intends to inspect and monitor the properties during and after the remedial alternative is implemented.

EPA RESPONSE: EPA does not intend to walk away once the ROD is signed, but, rather, to be present at the sites on a regular basis and to monitor the progress of the remediation. In addition, EPA is responsible for identifying a permanent solution for those properties where interim measures are to be implemented.

COMMENT: An attendee asked what criteria EPA used in its evaluation process.

EPA RESPONSE: Superfund law and regulations require EPA to use nine criteria including: protection of human health and the environment; compliance with legally applicable or relevant and appropriate requirements; reduction of toxicity, mobility, or volume of hazardous substances; short term effectiveness of the remedy; long term effectiveness and permanence of the remedy; implementability of the remedy; cost of the remedy; community acceptance; and state acceptance.

COMMENT: A council member asked if EPA will work with the municipality during the design of the remedial alternative selected.

EPA RESPONSE: EPA intends to work closely with the municipality throughout the remedial process. EPA seeks input and support from the municipality in helping ensure that the remediation is successful and causes as little disruption as possible.

COMMENT: A council member stated that the council is concerned about the public reaction to the proposed program, stating that the entire experience with the NJDEP pilot project frightened many community members. In the council's view, a major public relations campaign needs to be undertaken, and individual appointments with the affected Category I property owners need to be set up. In addition, the new administration at EPA in Washington needs to stand by the decision that is made and not change priorities: the community needs to be assured that the priorities concerning this issue will not change.

EPA RESPONSE: It is EPA's intention to work with each property owner individually. For example, EPA wants to work with each Category I family whose property requires excavation to find out the best way to conduct the excavation. EPA does not want to keep people out of their homes for extended periods of time. Moreover, the Agency has the same commitment to ensure that the remediation is conducted in a manner that is convenient, and causes as little disruption as possible to the Category II, III, and IV property owners. Approximately $53 million has been set aside to implement the Proposed Plan this year. By law, once the ROD is signed the only way EPA can deviate from that decision is to reopen the ROD, an action that would require another public comment period and the signing of another ROD.

COMMENT: A council member asked if EPA would consider moving a Category I home to another site.

EPA RESPONSE: EPA is willing to work individually with each homeowner and is open to discussion on this issue.

COMMENT: One resident stated that, regarding public relations, the best public relations EPA could do is to complete the remediation that NJDEP began and get those four displaced families back in their homes, adding that the community is very concerned about this issue.

EPA RESPONSE: EPA recognizes the considerable disruption the four pilot project families have endured and empathizes with them. EPA hopes to resolve their situation as expeditiously as possible. EPA must, however, go through all required review, selection, and bidding processes that the law requires.

COMMENT: A resident asked if institutional controls such as deed restrictions will result in the loss of market value of the homes.

EPA RESPONSE: This is a difficult question to answer, because it depends on complex factors, such as how it would affect the attractability to a potential buyer.

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APPENDIX A

Montclair/West Orange and Glen Ridge Radium Si

Proposed Plan Summary

INTRODUCTION

This summary highlights the plan for remedial action that the U.S. Environmental Protection Agency (EPA) is proposing for the Montclair/West Orange and Glen Ridge Radium Superfund sites in Essex County, New Jersey.

To review the problem, more than 300,000 cubic yards of soil on public and private properties within portions of the three communities are contaminated to varying degrees with radium. This is causing elevated indoor concentrations of radon gas and radon decay products in some houses, while others additionally exhibit elevated indoor and/or outdoor gamma radiation levels. Radon gas and gamma radiation present different types of radiation problems and, therefore, require different control techniques.

As noted during a public meeting held in November 1985, excavation of the radium-contaminated material is the Agency's preferred solution to the problem. However, experience since the 1985 recommendation has shown that it can be very difficult to locate and assure the continuing availability of a disposal facility. For that reason, EPA has been developing and evaluating additional alternatives to solve the problem. During this time, EPA has continued to maintain temporary measures to lower the exposure in affected homes.

SUPPLEMENTAL FEASIBILITY STUDY

Recognizing that the remediation of the Montclair/West Orange and Glen Ridge Radium sites through excavation and off-site disposal of the contaminated material could be extremely difficult, EPA decided to re-examine and search out additional remedies. EPA began a supplemental feasibility study in March 1987 to develop and evaluate measures to protect public health. The alternatives considered in the supplemental study consist of the following:

- No Additional Action
- Continue Existing Action
- Engineering Controls
- The Park(s) Alternative
- Total Excavation, With Off-site Disposal
- Partial Excavation, With Off-site Disposal
- The Combined Approach

THE PROPOSED PLAN

EPA is proposing for public discussion a plan for remediation of the Montclair/West Orange and Glen Ridge Radium sites that would address the most highly contaminated properties by excavating the radium-contaminated soil and transporting it to an off-site disposal facility. Additional interim actions would be taken on the less contaminated properties to further ensure protection of public health. The properties within the three study areas would be grouped into the following categories:

> Category "I" Properties -- Core area properties which have extensive radium contamination throughout the property, including under and around the house foundation, have elevated levels of gamma radiation, and have concentrations of radon or radon decay products in excess of health guidelines. The 23[1] category "I" properties would be fully excavated to achieve soil cleanup standards and restored with clean soil.
>
> Category "II" Properties -- Properties with basement wall or outdoor gamma radiation levels equal to or greater than 50 microRoentgens per hour and with extensive radium contamination, but not under the house foundation. Interim remediation of the 75 category "II" properties would consist primarily of engineering controls to reduce exposures to radon gas and decay products, gamma radiation, and radium-contaminated soil. The engineering controls may include the installation of state-of-the-art radon control systems, lead shielding for gamma radiation, and the covering of contaminated soil with topsoil and sod. These activities would occur simultaneously with the remediation of the category "I" properties. It is anticipated that a limited amount of radium-contaminated soil will need to be removed from the category "II" properties to facilitate the installation of the engineering controls. Because contaminated soil would remain beneath these properties, institutional controls (e.g., municipal or county health ordinances) would be required.
>
> Category "III" Properties -- Properties with radon, radon decay product and/or gamma radiation levels above health guidelines and with limited, or "hot spot", contamination. The 65 category "III" properties would receive engineering and institutional controls. In some cases, small amounts of soil may be removed.

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[1] Includes four properties that are partially excavated as part of the New Jersey Department of Environmental Protection's pilot excavation program.

Category "IV" Properties -- Properties with soil contamination above cleanup standards, but with no radon, radon decay product or gamma radiation levels above health guidelines. The approximately 286 category "IV" properties would receive additional monitoring and institutional controls.

"V" Properties -- Properties which exhibit no radium-contaminated soil in excess of soil cleanup standards. The approximately 298 category "V" properties would need no further study or remedial action.

Public Areas and Streets -- Areas not privately owned which have some degree of radium-contaminated soil present would require institutional controls.

It is estimated that approximately 50,000 cubic yards of radium-contaminated soil would be excavated during this remedial action. The cost of the proposed remedial action has been estimated to be $53 million. EPA is aware that implementation of the plan proposed above would be disruptive to individual homeowners and the community as a whole. EPA intends to fully consult with the affected residents and the community regarding a safe and expeditious implementation of the above proposal.

OTHER ACTIVITIES

EPA has been studying and experimenting with various "treatment" technologies in an attempt to identify methods which might further reduce the volume of soil requiring off-site disposal. These experiments, which involve the use of physical separation and chemical extraction techniques, will continue. EPA will continue to evaluate the more promising methods to determine their potential usefulness for further remediation of the remaining properties.

Additionally, EPA is initiating a study of the groundwater at the sites. The intent of the study will be to determine the extent of any contamination due to the tainted soil and to evaluate mitigation alternatives.

SUMMARY

In brief, this Proposed Plan reconfirms EPA's 1985 finding that the preferred solution for the radium sites is to excavate the contaminated soil, dispose of it in an accredited disposal facility, and restore the affected properties with clean soil. However, because of the need for continued study of treatment technologies, and the difficulty in assuring the continuing availability of a disposal site, EPA is proposing a phased program of remedial action. This proposed remedial action, identified as the "Combined Approach", will involve the excavation of the most contaminated properties, and, for the less contaminated properties, the installation of engineering controls and the establishment of institutional controls. The proposed remedy would be protective of public health.

Implementing this remedy would give EPA valuable experience with excavation techniques and experience in working out details with residents and community leaders on restoring properties. To carry out the additional work needed to reach a permanent cleanup, EPA and the New Jersey Department of Environmental Protection would continue to explore the availability of additional disposal capacity and would also explore alternative technical solutions for the remaining contamination.

Any additional remedial action which may be taken at the sites would be the subject of a future Record of Decision.

EPA

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WEST ORANGE TOWN COUNCIL MEETING
FOR THE
MONTCLAIR/WEST ORANGE AND GLEN RIDGE RADIUM SITES
ESSEX COUNTY, NEW JERSEY

PUBLIC INFORMATION MEETING SUMMARY
MONTCLAIR/WEST ORANGE AND GLEN RIDGE RADIUM SITES
TOWN OF WEST ORANGE, ESSEX COUNTY, NEW JERSEY

On April 3, 1989 at 7:00 p.m., the U.S. Environmental Protection Agency (EPA) attended a special West Orange Town Council meeting at the invitation of Mayor Samuel Spina. The meeting was held to discuss the Montclair/West Orange and Glen Ridge Radium sites located in Essex County, New Jersey. EPA's purpose in attending the meeting was to inform local officials and residents that EPA had completed the draft Supplemental Feasibility Study (FS) for the Montclair/West Orange and Glen Ridge Radium sites and to explain EPA's Proposed Plan for the sites. The presentation included a brief review of the draft Supplemental FS prepared for the sites and an introduction to the Proposed Plan. In addition, EPA responded to questions from interested local officials and citizens. Attached to this meeting summary as Appendix A, is a fact sheet that was distributed at the meeting. Approximately eight people attended the public meeting.

EPA Region II representatives included: James Marshall, EPA Acting Deputy Regional Administrator; Ronald Borsellino, Branch Chief, New Jersey Remedial Action Branch; and William Baker, Acting Director, Office of External Programs. Carl Zoephel, REM II Community Relations Specialist represented EPA's Region II's contractor.

The public meeting began with West Orange Mayor Samuel Spina's introduction of James Marshall, Acting Deputy Regional Administrator of EPA Region II. Mr. Marshall explained that EPA has been grappling with the difficult problem of disposal of the contaminated soil since the initial Montclair/West Orange and Glen Ridge Remedial Investigation and Feasibility Study (RI/FS) was released in 1985. He went on to explain that additional sampling and evaluation of remedial alternatives has been conducted and EPA is now asking the public to comment on the Proposed Plan.

Mr. Marshall invited local officials, affected residents, and interested citizens to actively participate in the decision making process for the sites. To encourage public participation in the decision making process, he noted that copies of the Proposed Plan and draft Supplemental FS report were being placed in the library and Town Hall for public review. Additionally, he stated that EPA would be mailing the Proposed Plan to all affected residents on or about April 5, 1989. Included in the mailing would be a stamped, addressed postcard that would allow interested residents to request Volume 1 of the draft Supplemental FS report.

Mr. Marshall then outlined the public participation process for this phase of the project, noting that a public comment period on the Proposed Plan would be held from April 4 to June 2, 1989. He also explained that, in addition to the Town Council meeting, EPA

Mr. Luftig then outlined the public participation process for this phase of the project, noting that a public comment period on the Proposed Plan would be held from April 4 to June 2, 1989. He also explained, that in addition to the Town Council meeting, EPA staff will be available to meet with residents on an individual basis on April 5-7, 1989 from 2:00 p.m. until 7:00 p.m., and on Saturday, April 8 from 10:00 a.m. to 3:00 p.m. at EPA's office trailers on Oak Street, adjacent to Nishuane Park in Montclair. He further explained that a public meeting and additional public availability sessions would be held in mid-May.

Fact sheets were then distributed to all in attendance which provided a summary of the Proposed Plan. Following his overview, Mr. Luftig introduced Raimo Liias, Remedial Project Manager, Northern New Jersey Remedial Action Branch, who gave a presentation.

Mr. Liias presented the history of the Montclair/West Orange and Glen Ridge sites and explained that EPA's preferred remedial alternative -- to excavate all radium-contaminated soil and transport it to an off-site disposal facility -- was recommended following the initial RI/FS in 1985. He explained that the New Jersey Department of Environmental Protection (NJDEP) had initiated a pilot program at twelve properties in Montclair and Glen Ridge to study the feasibility of excavating and disposing of radium-contaminated soil.

Mr. Liias then explained that, after successful remediation at four properties in Glen Ridge, and in the middle of excavation of four Montclair properties, New Jersey's disposal permit was revoked and the State was left without a disposal facility. Consequently, NJDEP left drums of containerized soil at a loading and transfer facility in Kearny, New Jersey and in the yards of the four Montclair pilot project properties.

The pilot program demonstrated that excavation, removal, and disposal of radium-contaminated soil was technically feasible. Although, securing a disposal facility and the transportation components of the overall remedial action program remain uncertain factors.

Mr. Liias further explained that EPA has tried to examine several feasible alternatives to reduce the volume of soil requiring excavation while trying to secure a disposal facility. He then presented the Proposed Plan, which consists of two parts: (1) excavation of radium-contaminated soils in the most highly contaminated properties, followed by transport of the soils to an off-site disposal facility; and (2) interim actions that will be implemented at less contaminated properties, to include partial or "hot spot" excavation, engineering controls (e.g., radon control systems and gamma radiation shielding) and institutional controls.

Mr. Liias then reviewed the criteria for the five categories and the number of properties within each category in Glen Ridge, as described below.

Category "I" Properties - Includes 5 core area properties, all of which have extensive radium contamination throughout the property, including under and around the house foundation; elevated levels of gamma radiation; and concentrations of radon or radon decay products in excess of health guidelines.

Category "II" Properties - Includes 21 properties with basement wall or outdoor gamma radiation levels equal to or greater than 50 micro-Roentgens per hour and with extensive radium contamination.

Category "III" Properties - Includes 23 properties with radon, radon decay product or gamma radiation levels above health guidelines and with limited, or "hot spot", radium contamination.

Category "IV" Properties - Includes 96 properties with soil contamination above cleanup standards, but with no radon, radon decay product or gamma radiation levels above health guidelines.

Category "V" Properties - Includes 161 properties which have no detectable radium-contaminated soil present in excess of the soil cleanup standards.

Mr. Liias ended his presentation with a review of the decision making process, emphasizing the opportunities for public involvement throughout this process. Following the above presentation by EPA, comments and questions from the public were invited. However, the town council decided to adjourn the meeting early and indicated that they would submit a list of comments and questions at a later date.

GLEN RIDGE TOWN COUNCIL MEETING
FOR THE
MONTCLAIR/WEST ORANGE AND GLEN RIDGE RADIUM SITES
ESSEX COUNTY, NEW JERSEY

PUBLIC INFORMATION MEETING SUMMARY
MONTCLAIR/WEST ORANGE AND GLEN RIDGE RADIUM SITES
BOROUGH OF GLEN RIDGE, ESSEX COUNTY, NEW JERSEY

On April 3, 1989 at 7:30 p.m., the U.S. Environmental Protection Agency (EPA) attended a special Glen Ridge Town Council meeting at the invitation of Mayor Edward Callahan. The meeting was held to discuss the Montclair/West Orange and Glen Ridge Radium sites located in Essex County, New Jersey. EPA's purpose in attending the meeting was to inform local officials and residents that EPA had completed the draft Supplemental Feasibility Study (FS) for the Montclair/West Orange and Glen Ridge Radium sites and to explain EPA's Proposed Plan for remediation of the sites. The presentation included a brief review of the draft Supplemental FS report prepared for the sites and an introduction to the Proposed Plan. In addition, EPA responded to questions from interested local officials and citizens. Attached to this meeting summary as Appendix A, is a fact sheet that was distributed at the meeting. Approximately three people attended the public meeting.

EPA Region II representatives included: Stephen Luftig, Director, Emergency and Remedial Response Division; and Raimo Liias, Remedial Project Manager, Northern New Jersey Remedial Action Section; and Cecelia Echols, Community Relations Specialist, Office of External Programs. EPA contractor personnel included Peter Mavraganis, REM II Community Relations Specialist, and Peter Tunnicliffe, REM II Regional Manager.

The public meeting began with Glen Ridge Mayor Edward Callahan's introduction of Mr. Luftig, Director, Emergency and Remedial Response Division, Region II EPA. Mr. Luftig explained that EPA has been grappling with the difficult problem of disposal of the contaminated soil since the initial Montclair/West Orange and Glen Ridge Remedial Investigation and Feasibility Study (RI/FS) report was released in 1985. He went on to explain that additional sampling and evaluation of remedial alternatives has been conducted and EPA is now asking the public to comment on the Proposed Plan.

Mr. Luftig invited local officials, affected residents, and interested citizens to actively participate in the decision making process for the sites. To encourage public participation in the decision making process, he noted that copies of the Proposed Plan and draft Supplemental FS report were being placed in the library and Town Hall for public review. Additionally, he stated that EPA would be mailing the Proposed Plan to all affected residents on or about April 5, 1989. Included in the mailing would be a stamped, addressed postcard that would allow interested residents to request Volume 1 of the draft Supplemental FS report.

staff will be available to meet with residents on an individual basis on April 5-7, 1989, from 2:00 p.m. until 7:00 p.m., and on Saturday, April 8 from 10:00 a.m. to 3:00 p.m. at EPA's office trailers on Oak Street, adjacent to Nishuane Park in Montclair. He further explained that a public meeting and additional public availability sessions would be held in mid-May.

Fact sheets were then distributed to all in attendance which provided a summary of the Proposed Plan. Following his overview, Mr. Marshall introduced Ronald Borsellino, Chief, New Jersey Remedial Action Branch, Region II EPA, who gave a presentation.

Mr. Borsellino presented the history of the Montclair/West Orange and Glen Ridge sites and explained that EPA's preferred remedial alternative -- to excavate all radium-contaminated soil and transport it to an off-site disposal facility -- was recommended following the initial RI/FS in 1985. He explained that the New Jersey Department of Environmental Protection (NJDEP) had initiated a pilot program at twelve properties in Montclair and Glen Ridge to study the feasibility of excavating and disposing of radium-contaminated soil.

Mr. Borsellino then explained that, after successful remediation at four properties in Glen Ridge, and in the middle of excavation of four Montclair properties, New Jersey's disposal permit was revoked and the State was left without a disposal facility. Consequently, NJDEP left the drums of containerized soil at a loading and transfer facility in Kearny, New Jersey and in the yards of the four Montclair pilot program properties.

The pilot program demonstrated that excavation, removal, and disposal of radium-contaminated soil was technically feasible. However, the feasibility of transportation and disposal remain uncertain factors in the overall remedial action program.

Mr. Borsellino further explained that EPA has tried to examine several feasible alternatives to reduce the volume of soil requiring excavation while trying to secure a disposal facility. He then presented the Proposed Plan, which consists of two parts: (1) excavation of radium-contaminated soils in the most highly contaminated properties, followed by transport of the soils to an off-site disposal facility; and (2) interim actions that will be implemented at less contaminated properties, to include partial or "hot spot" excavation, engineering controls (e.g., radon control systems and gamma radiation shielding) and institutional controls.

Mr. Borsellino then reviewed the criteria for the five categories and the number of properties within each category in West Orange, as described below.

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Category "I" Properties - Includes 2 core area properties, both of which have extensive radium contamination throughout the property, including under and around the house foundation; elevated levels of gamma radiation, and concentrations of radon or radon decay products in excess of health guidelines.

Category "II" Properties - Includes 4 properties with basement wall or outdoor gamma radiation levels equal to or greater than 50 micro-Roentgens per hour and with extensive radium contamination.

Category "III" Properties - Includes 8 properties with radon, radon decay product or gamma radiation levels above health guidelines and with limited, or "hot spot", radium contamination.

Category "IV" Properties - Includes 28 properties with soil contamination above cleanup standards, but with no radon, radon decay product or gamma radiation levels above health guidelines.

Category "V" Properties - Includes 33 properties which have no detectable radium-contaminated soil present in excess of the soil cleanup standards.

Mr. Borsellino ended his presentation with a review of the decision making process, emphasizing the opportunities for public involvement throughout this process. Following the presentation by EPA, Mr. Marshall opened the meeting to comments and questions from the public. These comments focused on the following topics:

- Project Schedule;
- Technical Issues;
- Health Concerns;
- Administrative Issues; and
- Financial Concerns.

A summary of comments and EPA responses to these comments is presented below.

1. Project Schedule

COMMENT: A resident asked about the length of time required to excavate and remediate a property.

EPA RESPONSE: Excavation and remediation for each property will take approximately four months, depending on the nature and extent of the contamination.

COMMENT: A resident asked when remedial work would start.

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EPA RESPONSE: Design work will begin following the 60-day comment period after the Record of Decision (ROD) has been signed, possibly in September. Engineering controls could start fairly soon thereafter, although excavation will be later.

2. Technical Concerns

COMMENT: An attendee asked what EPA is going to do with the excavated soil.

EPA RESPONSE: The soil will be shipped off-site. EPA has already ascertained that there is a Utah facility which can take the material; there is also the possibility that other licensed facilities may be available to take it.

COMMENT: A resident asked if the cutback on the amount of soil being excavated is being made because of the difficulty with disposal?

EPA RESPONSE: There is a certain amount of caution regarding the securing of a disposal facility because of the previous problems with the NJDEP pilot project. In addition, EPA does not want to remove people from their homes for any longer than is necessary. Cost is also a factor.

COMMENT: A council member asked what institutional controls would have to be implemented at the site in order to fulfill the requirements of EPA's proposed alternative.

EPA RESPONSE: It will be up to each town council to develop, implement, and enforce local institutional controls. EPA will work closely with each town to address this issue.

COMMENT: A council member asked if the town department of public works would be able to perform normal excavation activities on town streets and sidewalks.

EPA RESPONSE: EPA will assist the town in developing proper protocols for monitoring and handling materials excavated during maintenance operations conducted on public streets and sidewalks. EPA would be able to provide some financial assistance to defray premiums required for proper off-site disposal of radium-contaminated soils excavated from public areas within the study areas.

COMMENT: A resident asked if EPA is using both radon and gamma levels to determine the categories into which homes are placed.

EPA RESPONSE: Yes.

COMMENT: Regarding a house that contains indoor gamma radiation, but no outdoor radiation, one resident asked if that means the contamination is underneath the house?

EPA RESPONSE: Probably. All houses being remediated will be re-tested to confirm the results that EPA has obtained in previous analyses.

COMMENT: The Health Officer asked how long it will take to remediate the Category I properties.

EPA RESPONSE: Category I homes may take four years to remediate, although EPA hopes to perform the work at properties in several categories concurrently.

3. Health Concerns

COMMENT: A council member asked if any epidemiological studies have been conducted.

TOWN HEALTH OFFICER RESPONSE: A study was started. However, the study was inconclusive because several people had left the area.

4. Administrative Concerns

COMMENT: A resident indicated that people are not going to want to leave their homes knowing what's happened in NJDEP's pilot project.

EPA RESPONSE: EPA is sensitive to the community's concerns on this issue and has tried to design the Proposed Plan to avoid this type of situation from reoccurring. Unless there is a disposal site available, EPA will not begin to relocate residents and excavate their properties.

COMMENT: A resident asked who owns the disposal site.

EPA RESPONSE: It is privately owned and managed under both federal and State of Utah regulations and supervision.

COMMENT: The mayor indicated that a woman at the meeting has a house that will require full remediation. Can EPA explain what will happen in this case?

EPA RESPONSE: The resident will have to relocate while the remedial process takes place. EPA is looking at options to relocate residents in hotels, or perhaps, other houses. EPA will work with the residents individually and collectively, as well as with the local officials, to design how the excavation should be conducted, so as to disrupt the property owners as little as possible. The U.S. Department of Energy (DOE) has performed a number of successful temporary relocations during remediation projects that required excavations.

COMMENT: A resident asked what would happen to elderly people during the excavation.

EPA RESPONSE: EPA will work with each property owner individually to design a remediation effort that is the most convenient and least disruptive for that property owner, while ensuring that public health is protected.

COMMENT: A resident asked how remediation will be handled.

EPA RESPONSE: The remediation will be designed on a house-by-house, property-by-property basis.

COMMENT: A resident mentioned that most people are frightened by the relocation. The NJDEP's pilot project at the homes on Franklin Avenue was a "disaster".

EPA RESPONSE: EPA has designed the excavation component of the Proposed Plan to avoid a reoccurrence of the difficult situation that affects the residents who were part of the NJDEP pilot project. If for any reason, there is a problem with the off-site disposal facility, the property will be backfilled and the families promptly moved back into their homes.

COMMENT: The Health Officer asked who will notify residents as to the category into which their homes fall.

EPA RESPONSE: EPA will notify each resident within the study area individually by letter as to the category of cleanup for their property. All Category I property owners will also be telephoned by EPA to give them the information directly.

COMMENT: A real estate agent asked if the categories will be public knowledge.

EPA RESPONSE: EPA will not share specific information about individual properties. However, the information contained within the draft Supplemental FS report is public knowledge.

COMMENT: A council member asked what happened to the four families who were part of the NJDEP pilot project in Montclair.

EPA RESPONSE: Unfortunately, NJDEP has not been able to complete the remediation at these properties, and these residents are still out of their houses. As part of the Proposed Plan, EPA would take over responsibility for finishing the remediation at the NJDEP pilot program properties. EPA hopes to finish the remediation efforts at these properties expeditiously.

COMMENT: A question was raised concerning the security of houses and possessions during the period when Category I residents are relocated.

EPA RESPONSE: EPA has included funds for site security during the excavation and remediation period when residents will be out of their homes. In addition, EPA's construction contractors typically retain a security firm as part of their contract, to provide security for the site during the remedial action.

COMMENT: A resident asked if there is any way that funds would be available especially for the elderly, to buy another house, and suggested that EPA could sell the remediated houses at a later date.

EPA RESPONSE: At this time EPA has no plans to buy any properties, but is willing to talk individually with each property owner about what is the best option, given their particular situation.

COMMENT: The Health Officer asked if there will be any public meetings to discuss how homeowners would be treated, or whether this type of communication will be done on an individual basis.

EPA RESPONSE: During the public comment period -- which begins on April 4 and runs until June 2, 1989 -- EPA will be considering all comments received on the Proposed Plan. EPA also will hold a large public meeting, probably in mid-May, to discuss the Proposed Plan. Depending on the response received and the needs of the community, EPA would be happy to hold other meetings to work out the details of how the remediation should be conducted.

COMMENT: The mayor asked if it would be easier for EPA to buy a house at the fair market value, remediate it, and then sell it, noting there are only two Category I properties in West Orange.

EPA RESPONSE: EPA is willing to explore all options to make things easier for residents. EPA has certain legal constraints within which it has to work, but is willing to talk with the affected residents, concerned citizens, and local officials to facilitate this effort.

COMMENT: A resident asked how EPA is going to respond to people whose houses are not going to be permanently remediated.

EPA RESPONSE: Every house with a radon or gamma radiation level above health guidelines will be remediated to be within protective health levels. Properties where interim measures are implemented will be monitored and re-evaluated as additional permanent solutions are identified.

COMMENT: The mayor indicated that since there are more than two houses in West Orange with ventilation systems, could the number of Category I house increase.

EPA RESPONSE: It takes more than the .02 WL to be a Category I house. Some houses may switch categories, but EPA does not expect to identify any more Category I houses.

COMMENT: A real estate agent asked who the "unfortunate" people are to which EPA referred earlier.

EPA RESPONSE: The comment referred to the four Montclair pilot project property owners, whose houses were evacuated by NJDEP.

COMMENT: The mayor asked who has jurisdiction in the remedial action process.

EPA RESPONSE: EPA has the lead at the sites, although it is working closely with the State. NJDEP had the lead on the pilot project, but EPA always has had the overall lead. Under EPA's Proposed Plan, the remediation that was begun by NJDEP at the pilot project homes would be completed by EPA.

COMMENT: A council member asked whether, at the point that a Category II is remediated, EPA will certify that the house is safe.

EPA RESPONSE: EPA will not certify homes, but will issue documentation that engineering controls have been implemented and that any residual contamination is below health guidelines.

COMMENT: A council member asked whether, if EPA were a private individual, it would recommend moving into one of the remediated Category II or III properties.

EPA RESPONSE: EPA is confident that the proposed remediation plan will be successful. The same engineering controls have been successfully implemented in homes with naturally occurring radon in Clinton, New Jersey.

5. Financial Concerns

COMMENT: A real estate agent asked if homes not being remediated will be affected by soil removal on adjoining properties.

EPA RESPONSE: EPA recognizes that contamination of adjoining properties could occur and, if it does, EPA will handle any such instances on a case-by-case basis.

APPENDIX C

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, NEW YORK 10278

AGENDA

Public Meeting
Montclair/West Orange/Glen Ridge Radium Sites
Nishuane Elementary School
Montclair, New Jersey

May 18, 1989
7:30 P.M.

I. Opening Remarks	William Muszynski Acting Regional Administrator U.S. EPA, Region II
II. Technical Presentation	John Frisco Associate Director for Remedial Action Programs U.S. EPA, Region II
III. Questions and Answers	
IV. Closing	

Other EPA Participants

Steve Luftig, Director
Emergency and Remedial Response Division

Ron Borsellino, Chief
New Jersey Remedial Action Branch

Robert McKnight, Chief
Northern New Jersey Remedial Action Section

Raimo Liias, Remedial Project Manager

Montclair/West Orange and Glen Ridge Radium Site

Sign In Sheet

May 18, 1989
7:30 p.m.

	Name	Address	Affiliation	Phon
1.	V. D'Amico	27 Lorraine St GR		
2.	[illegible]	48 Nishuane Rd Mont.		
3.	[illegible]	42 Nishuane Rd. Montclair		
4.	Joanne [illegible]	39 Nishuane Rd Montclair		
5.	CLIFFORD LINDHOLM	7 GLENSIDE TER MONTCLAIR		
6.	Kathy Schacker	92 Carteret ST GR		
7.	Laura Klepacki	—	The Record	201-429-0
8.	Rosemary Pusateri	38 Warren Pl, Mtclr	Environment Advisory Co	—
9.	J.T. [illegible]	20 FREMONT ST MONTCLAIR		
10.	Daphne Miner	The Montclair Times		
11.	Kate Bell	27 Virginia Avenue		
12.	Barbara Havel	35 L Park St	LWV + Environ Ad. Com	746-4
13.	Ann [illegible]	17 Franklin Ave Montclair		746 4 2
14.	Thomas C. Lincoln	366 Ridgewood Ave. Glen Ridge	Councilman	
15.	Cary [illegible]	Star-Ledger	[illegible]	783-9166
16.	Marjorie L. [illegible]	53 Nishuane Rd.		746-0
17.	Margaret [illegible]	281 Highland	Town Council	744 91
18.	John Duffy	23 Stephen St	Town Council	746-5
19.	Henrietta [illegible]	66 Nishuane Rd	Mtc	Mtc Radon
20.	Leah [illegible]	58 Nishuane Rd	Mtc	
21.	Willard O. & Adella [illegible]	35 Amelia St.	Mtc	
22.	Audrey Fletcher	6 Amelia St, Mtc		
23.	Audley Williams	50 Franklin Pl. Mtc.		
24.	Maurice J. Brown	62 Nishuane	Vice Chair - Mtc Radon Task	
25.	Carolyn W. Brown	134 Forest Ave	G.R. Councilwoman	
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Montclair/West Orange and Glen Ridge Radium Sit

Sign In Sheet

May 18, 1989
7:30 p.m.

	Name	Address	Affiliation	Phc
1.	Dr. L. SHANKS	46 VIRGINIA AVE		
2.	Mimi Neary	27 Warren Place Mtcl	LWV	
3.	Edward M. Callahan Jr.	11 Hamilton Rd Glen Rdg	- Mayor Glen Ridge	
4.	[illegible] Allen	165 CARTERET ST. G.R.	COUNCILMAN GLE	
5.	Tom DUGAN	110 CARTERET St.	GLEN Ridge	
6.	[illegible] Allen	60 Nishuane Rd Mtclr		
7.	LAVANNE HOPKINS	56 NISHUANE RD	MTCL.	
8.	Gerald W. Nash III	66 Nishuane Rd.	Mtcl	
9.	Herbert Waldman	18 Conrad Dr	W.O.	
10.	CARL BERGMANSON	8 LORRAINE ST, G.R.		
11.	RUBY SIEGEL	SAME		
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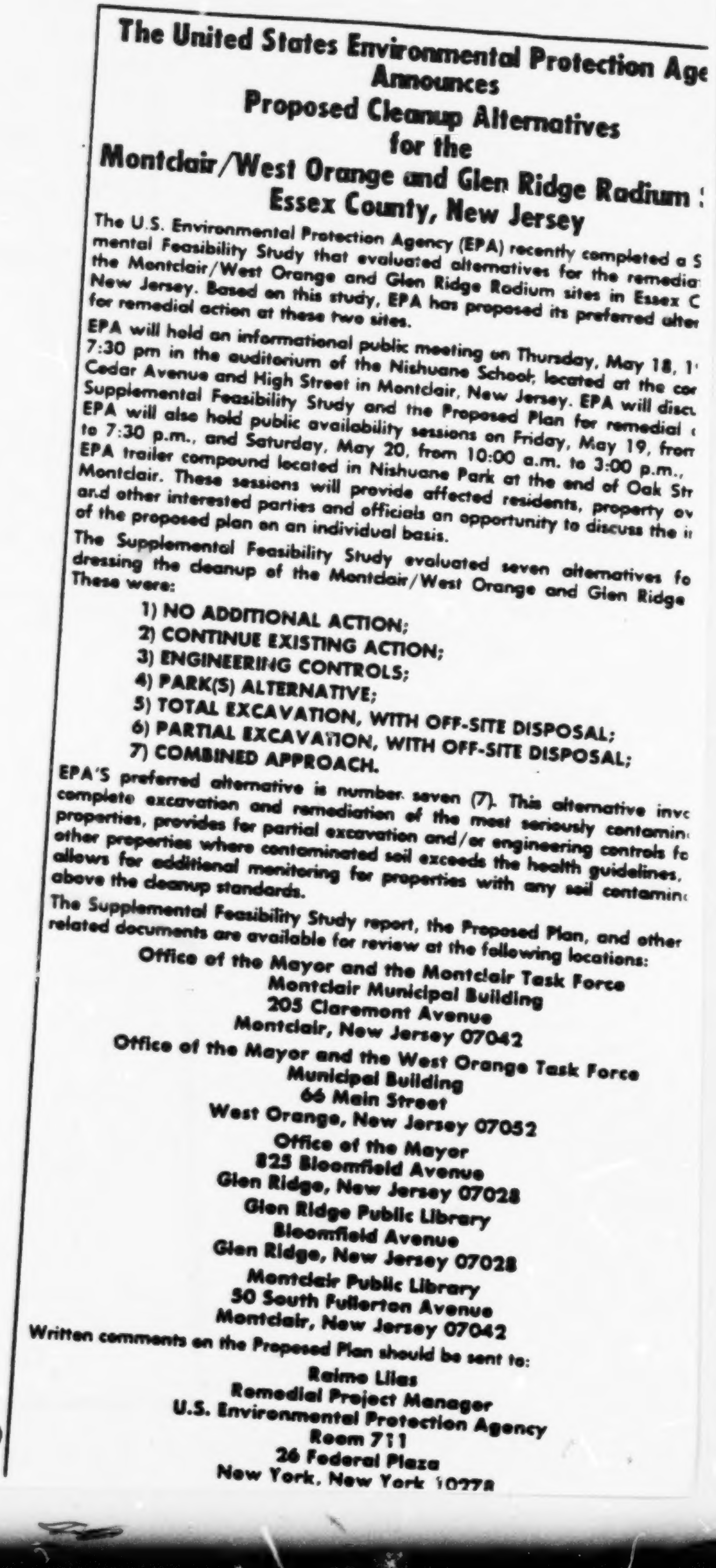
APPENDIX D



The United States Environmental Protection Age
Announces
Proposed Cleanup Alternatives
for the
Montclair/West Orange and Glen Ridge Radium :
Essex County, New Jersey

The U.S. Environmental Protection Agency (EPA) recently completed a S
mental Feasibility Study that evaluated alternatives for the remedia
the Montclair/West Orange and Glen Ridge Radium sites in Essex C
New Jersey. Based on this study, EPA has proposed its preferred alter
for remedial action at these two sites.

EPA will hold an informational public meeting on Thursday, May 18, 1
7:30 pm in the auditorium of the Nishuane School, located at the cor
Cedar Avenue and High Street in Montclair, New Jersey. EPA will discu
Supplemental Feasibility Study and the Proposed Plan for remedial
EPA will also hold public availability sessions on Friday, May 19, from
to 7:30 p.m., and Saturday, May 20, from 10:00 a.m. to 3:00 p.m.,
EPA trailer compound located in Nishuane Park at the end of Oak Str
Montclair. These sessions will provide affected residents, property ov
and other interested parties and officials an opportunity to discuss the i
of the proposed plan on an individual basis.

The Supplemental Feasibility Study evaluated seven alternatives fo
dressing the cleanup of the Montclair/West Orange and Glen Ridge
These were:

1) **NO ADDITIONAL ACTION;**
2) **CONTINUE EXISTING ACTION;**
3) **ENGINEERING CONTROLS;**
4) **PARK(S) ALTERNATIVE;**
5) **TOTAL EXCAVATION, WITH OFF-SITE DISPOSAL;**
6) **PARTIAL EXCAVATION, WITH OFF-SITE DISPOSAL;**
7) **COMBINED APPROACH.**

EPA'S preferred alternative is number seven (7). This alternative invc
complete excavation and remediation of the most seriously contamin
properties, provides for partial excavation and/or engineering controls fo
other properties where contaminated soil exceeds the health guidelines,
allows for additional monitoring for properties with any soil contamin
above the cleanup standards.

The Supplemental Feasibility Study report, the Proposed Plan, and other related documents are available for review at the following locations:

Office of the Mayor and the Montclair Task Force
Montclair Municipal Building
205 Claremont Avenue
Montclair, New Jersey 07042

Office of the Mayor and the West Orange Task Force
Municipal Building
66 Main Street
West Orange, New Jersey 07052

Office of the Mayor
825 Bloomfield Avenue
Glen Ridge, New Jersey 07028

Glen Ridge Public Library
Bloomfield Avenue
Glen Ridge, New Jersey 07028

Montclair Public Library
50 South Fullerton Avenue
Montclair, New Jersey 07042

Written comments on the Proposed Plan should be sent to:

Raimo Liias
Remedial Project Manager
U.S. Environmental Protection Agency
Room 711
26 Federal Plaza
New York, New York 10278

THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY ANNOUNCES AN EXTENSION OF THE PUBLIC COMMENT PERIOD OF THE PROPOSED CLEANUP ALTERNATIVES FOR THE MONTCLAIR/WEST ORANGE AND GLEN RIDGE RADIUM SITES ESSEX COUNTY, NEW JERSEY

The U.S. Environmental Protection Agency (EPA) recently completed a Supplemental Feasibility Study that evaluated alternatives for the remediation of the Montclair/West Orange and Glen Ridge Radium Sites in Essex County, New Jersey. Based on this study EPA has proposed its preferred alternative for remedial action at these two sites. This is a notification that the EPA has extended the public comment period which began on April 4, to June 9, 1989.

The Supplemental Feasibility Study report, the Proposed Plan, and other site related documents are available for review at the following locations:

Office of the Mayor and the Montclair Task Force
Montclair Municipal Building
205 Claremont Avenue
Montclair, New Jersey 07042

Office of the Mayor and the West Orange Task Force
Municipal Building
66 Main Street
West Orange, New Jersey 07052

Office of the Mayor
825 Bloomfield Avenue
Glen Ridge, New Jersey 07028

Glen Ridge Public Library
Bloomfield Avenue
Glen Ridge, New Jersey 07028

Montclair Public Library
50 South Fullerton Avenue
Montclair, New Jersey 07042

Written comments on the Proposed Plan should be sent to:
Raimo Liias
Remedial Project Manager
U.S. Environmental Protection Agency
Room 711
26 Federal Plaza
New York, New York 10278

Comments submitted to the above address should be postmarked before June 9, 1989.

To: Raimo Liias - U.S. EPA, Region II
From: Peter M. Price PMP
Date: June 27, 1989
Re: Administrative Records for Montclair/West Orange & Glen Ridge Radium Sites

Attached please find copies of the memos which were forwarded with the first parts of the Administrative Records to their respective site repositories. Three boxes comprised of documents numbered MGL 001 0001 through MGL 005 0877 were sent out by way of Federal Express overnight delivery on June 26, 1989, to the following addresses:

Montclair Public Library
50 South Fullerton Avenue
Montclair, New Jersey 07042
(201) 744-0502
attn: Ms. Mary Lou Cass

Glen Ridge Library
Ridgewood Avenue
Glen Ridge, New Jersey 07028
(201) 748-5482
attn: Mrs. Jean Loos

The remaining parts of the Administrative Records, documents numbered MGL 005 0878 through MGL 007 0576, are expected to be sent out, also by way of Federal Express, on June 27, 1989.

If you have any questions or comments please feel free to call me at (212) 393-9634.

Attachments

PMP/ny

cc: Jennie Delcimento - U.S. EPA, Region II
Bob Goltz - CDM FPC
Lee Bishop - TechLaw, Chantilly

TO: Ms. Mary Lou Cass

FROM: U.S. EPA, Region II

DATE: June 26, 1989

RE: Administrative Records for the Montclair/West Orange & Glen Ridge Radium Sites

Please find enclosed the official Administrative Record for the Montclair/West Orange Radium Site as compiled by the U.S. Environmental Protection Agency, Region II. Additional documents to be added to the Administrative Record will follow shortly.

An index to the Administrative Record will also follow shortly. The index, which inventories all of the documents contained within the Administrative Record, will be a useful guide in locating documents and should be kept with the Administrative Record.

cc:		
	Raimo Liias	(U.S. EPA Region II)
	Jennie Delcimento	(U.S. EPA Region II)
	Bob Goltz	(CDM FPC)
	Lee Bishop	(TechLaw, Inc.)